



JPRS Report

Proliferation Issues

PROLIFERATION ISSUES

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[This report contains foreign media information on issues related to worldwide proliferation and transfer activities in nuclear, chemical, and biological weapons, including delivery systems and the transfer of weapons-relevant technologies.]

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SOUTH AFRICA

U.S. Ban Highlights Missile Industry Potential

92W000874 Johannesburg SUNDAY STAR in English
27 Oct 91 p 11

[Article by Brendan Seery "Is SA's Hand in Israel's Jericho?"]

[Text] The recent United States ban on all trade with Armscor—because it believes South Africa is exporting missile technology to renege Third World countries—has focused attention again on this country's shadowy military industry.

At the heart of the American concern is their belief—backed by intelligence reports and assessments—that South Africa and Israel are cooperating in developing Intermediate Range Ballistic Missiles (IRBMs).

And the Americans have on a number of occasions fingered South African conglomerates—including giant Barlows Rand—as being involved in illegal smuggling of high-tech components from the U.S. for use in the missile programme.

U.S. intelligence sources have said Armscor is cooperating with Israel to build an IRBM which could deliver nuclear chemical or conventional warheads up to 1500 km with a far greater accuracy than the Scuds used in the Gulf War.

There have reportedly been at least two launches of IRBMs from Armscor's test range at De Hoop near Ararat in the Cape in the past 18 months.

U.S. Central Intelligence Agency sources quoted in U.S. newspaper reports in 1989 said the missiles under development were to be called the Shavit (Hebrew for Comet)—a development of Israel's Jericho II missile.

There has been speculation over the past two years that Armscor may also be involved in a space programme, turning to commercial ways to exploit its military expertise, especially in view of the drastically slashed SADF budget which has virtually halted all military research and development.

In a number of investigations U.S. Customs Department and FBI investigators have detailed the alleged smuggling networks which have been funneling parts to South Africa.

Special agents working for Customs identified a Johannesburg electronics company, Telcom Industries, as having set up a "front" company in Florida specifically to acquire restricted technology.

According to a sworn affidavit by Customs Special Agent Lawrence O'Donnell—presented to a Florida court, and which is in the possession of the SUNDAY STAR—Telcom's director, Reginald van Rossum, was involved

in smuggling components to South Africa for a period of at least three years up to 1990.

Mr. Van Rossum's front company, York Ltd, operated from Boynton Beach in Florida, acquiring parts from manufacturers across the U.S. Staffers at York were told to tell suppliers that the parts were destined for export to Holland.

False declarations allowed the shipping of restricted goods under "general" licences.

Earlier this month, Mr. van Rossum's secretary at York Ltd, Beverly Barratt, was convicted of assisting in the smuggling operation and sentenced to three years' probation.

In Johannesburg, Telcom Industries personnel have refused to answer any press queries in connection with the York Ltd case, and have also refused to reveal Mr. van Rossum's whereabouts or links to the company.

Agent O'Donnell said bank records showed that there had been 15 monetary wire transfers into York Ltd's bank account in 1990. A total of 12 of these came from Telcom Industries in Johannesburg and represented an amount of \$400,000 (about R11 million). Two other transfers came from Fuchs Electronics—a subsidiary of the giant Barlows Rand conglomerate.

The other transfer was from Connel (Conmaker Electronics) in South Africa.

The latest finger-pointing at Barlows Rand comes in the wake of a number of reports over the past 18 months linking the conglomerate to arms-related sanctions-busting.

The allegations surfaced as part of investigations into the affairs of a former Pennsylvania businessman, James Guerin and his electronics firm, International Signal and Control Corporation (ISC).

Federal investigations in the U.S. earlier this year alleged that ISC subsidiaries, including ISC Education Systems, had been shipping illegally acquired state-of-the-art arms technology (including missile guidance system parts) to South Africa in shipments disguised as "computer based education material for blacks."

The allegations, reported in the INTELLIGENCER JOURNAL newspaper in Lancaster, Pennsylvania (ISC's home base) quoted investigators as saying they had discovered myriad "front" companies.

One investigator remarked: "Every time we kick a rock and we think we are getting to an end eight snakes shoot out and hide under the other eight rocks. Who knows where this will all end?"

Barlows has admitted it had an interest in ISC in the mid 1970s, but that it sold it after only six months, and has no more interest in the company.

Grimaker Electronics' "frequency hopping" radio, produced for Armscor, caused a flurry of interest when it made a debut at an arms fair in Chile in 1984, with JANE'S DEFENCE WEEKLY calling it "among the most advanced available from any manufacturer."

Yesterday Ken Inneside, Barlow Rand's general manager, group public affairs, said: "We have no comment to make except to confirm that Barlow Rand had an interest in ISC in the mid-1970s. That was sold after six months and we have no further interest in that company."

Barlow Rand: Arms Smuggling Charged

92490175Z Johannesburg THE WEEKLY MAIL
in English 15-21 Nov 91 pp 2-3

[Article by Gavin Evans, "Barlow Rand Hard Hit by Arms Smuggling Charges", first paragraph in THE WEEKLY MAIL introduction]

[Text] Conspiracy to provide Saddam Husayn with weapons—that's the charge levelled against several South African companies and their employees, Gavin Evans reports.

South Africa's leading industrial corporation, Barlow Rand Limited, has been hard-hit by a series of charges of involvement in secret arms deals—including allegations that it played a central role in smuggling artillery fuses to Iraq.

Barlow subsidiary Fuchs Electronics (Pty) Limited and its technical director, Jaco Budricks, have been charged in the United States with conspiracy to supply Saddam Husayn with advanced weaponry between 1985 and 1989. Also charged are Armscor (South African Armaments Corporation), its subsidiary Kestron, seven Armscor and Kestron employees, and seven U.S. citizens.

THE WEEKLY MAIL has received information—in addition to the allegations in the indictment—that Fuchs continued to be linked to the arms trade with Iraq at least until the middle of last year.

Commenting on state documents showing that another Barlow Rand subsidiary, Sandock-Kaunel, was involved in arms deals with Germany for the South African Defence Force (SADF) in the mid-1980s, the company's general manager, group public affairs, Ken Inneside, said Sandock-Kaunel was only acquired by the Barlow Rand group last year. He would not comment on questions concerning whether Sandock-Kaunel, Fuchs or other Barlow Rand companies were still involved in arms production or trade.

Fuchs, an East Rand-based company, is listed in the U.S. indictment as being involved in the design and manufacture of "ordnance and explosive devices for Armscor". It manufactures the electronic fuses for most of the bombs, mortars and rockets used by the SADF and also

produces a wide range of radios, including the frequency-hopping radio which has been marketed extensively in the Middle and Far East and Latin America.

The essence of the charges are that Armscor and the International Signals and Control Corp (ISC) collaborated in developing advanced weapons systems both for South African consumption and for marketing to Iraq and China.

Specific charges relating to Barlow Rand include the following:

—Fuchs director Budricks was involved with Armscor officials in establishing front companies for Armscor and "procuring such munitions, military technical data and other commodities necessary for Armscor to design and manufacture fighter aircraft, missiles, helicopters, armoured ground vehicles and ammunition". This technology was then illegally smuggled to South Africa.

—In about 1982 ISC developed a PF-1 proximity fuse—"a device designed to enable an explosive warhead to detonate above the target in order to maximise the kill ratio". Four years later it entered into a contract with Chita to test these fuses, but problems of permanent detonation were experienced in the testing phase. As a result in February 1988 ISC contracted with Fuchs to assist with the fuse problem.

ISC smuggled 5,500 fuse castings ("misrepresented as metal parts") to Durban Pty Ltd—a front company for Fuchs—"for integration of South African electrical systems". Fifty of these fuses were then smuggled back to the USA for testing.

—In 1988 ISC and Fuchs linked up with the Chiran arms company Industrias Cardoen Limitada, the indictment charges, to produce and market PF-1 fuses for the Eastern Bloc and Iraq. The plan involved ISC supplying 300,000 fuses to Fuchs for delivery to a Cardoen subsidiary which would then sell them (to) Iraq. The contract involved Iraq paying Fuchs in crude oil and Fuchs paying \$33 million to ISC. The indictment does not state whether this transaction was concluded.

—Between 1985 and 1989 ISC sold Fuchs \$4.4-million worth of fuse components "to assist Fuchs to fulfill its production requirements with Iraq," according to the indictment. These were needed by Iraq for its G-5 artillery which had earlier been supplied by Armscor. G-5 shells captured by the Americans in the Gulf war contained these U.S.-made parts.

If convicted Fuchs faces a fine of up to \$21.5-million, as well as seizure of its U.S. assets, while Budricks faces up to 235 years imprisonment and a potential fine of \$23.25-million, according to the U.S. Justice Department.

Shortly before the allegations against Fuchs were revealed, THE WEEKLY MAIL was contacted by a

source in the arms industry who said that the company had been involved last year in exporting a shipment of equipment intended for military use to Iraq, but the international blockade against Iraq prevented the equipment from reaching its destination. Barlow Rand refused to comment.

The arms industry source also said that frequency-hopping radios, which had initially been designed by Salbu (Pty) Ltd in Iwer, were sold by Armcoor to both Iraq and Iran. Salbu founder James Larsen confirmed to THE WEEKLY MAIL that he had designed the frequency-hopping radio, but said that Salbu was now owned by Ginnaker Holdings, that he was now retired, and he did not know where the frequency-hopping radio had been marketed.

Much of the research for such projects was done at the University of Pretoria Engineering faculty, and by the Carl and Emil Fuchs Institute of Micro Electronics at the university, the arms industry source said.

Barlow Rand has a long history of central involvement in South Africa's arms industry. It has been supplying the SADF since the early 1960s and by the 1980s was the SADF's major supplier of electronic equipment.

Book on Details of Nuclear Testing With Israel

92RP00878 Cape Town WEEKEND ARGUS
in English 2 Nov 91 p 4

[Article by Jeremy Brooks. "SA: Tested Nuclear Device"]

[Text] London—Israeli and South African scientists worked together secretly for nearly three decades to produce a nuclear bomb, testing at least three warheads off the Cape coast during the late Seventies.

Assertions to this effect have been made by senior Washington journalist Seymour Hersh in Britain and America. His book, "The Samson Option—Israel, America and the Bomb," was released in Washington and here last week.

Hersh, respected as a meticulous and thorough researcher, spent three years interviewing senior American and Israeli officials and scanning previously classified White House papers.

Other revelations in his book, led to the sacking this week of top Fleet Street foreign editor Nicholas Davies, named by Hersh as an arms dealer and agent for Mosad, the Israeli secret service.

The claims of South African involvement in the Israeli nuclear programme have gone unnoticed in the controversy, which has even reached the House of Commons.

Billionaire British publisher Robert Maxwell, also named as having Israeli connections, has issued warnings against Hersh and his publishers, Faber and Faber.

Hersh says the South Africans wanted to develop a "low-yield nuclear artillery shell" which could be used if frontier & borders were breached and urban centres threatened.

They found a willing ally in Israel whose nuclear programme, based in the reactor plant at Dimona in the Negev, already was well advanced.

The Israelis found themselves alone in 1967 when Charles de Gaulle decided to withdraw clandestine French support at Dimona. They also were unable to conduct a test without alerting the Russians and Americans—whose spy satellites were orbiting—and causing immediate uproar.

The South Africans had, until then, been supplying Dimona with shipments of raw uranium "yellowcake" from which plutonium could be processed in a warren of secret vaults buried deep beneath Dimona.

The G-1 series were restricted to 10 tests—too small to require monitoring by the International Atomic Energy Agency.

Hersh quotes arms dealer Mr. Ari Ben-Menashe, who at the time worked in Israel's Ministry of Defence: "The South Africans weren't good at all as a nuclear power, we had to help all the way."

The Americans found out by chance what was happening when a storm over the South Indian Ocean raged momentarily on 22 September 1979.

As the clouds parted a nuclear detection satellite known as Vela picked up two flashes of light.

The flashes were distinctive of a nuclear explosion and had only been picked up before over Lap Nur, where the Red Chinese were conducting test atmospheric explosions.

Hersh says the test was probably conducted on a barge.

Israeli sources told him: "There was a storm and we figured it would block Vela, but there was a gap in the weather—a window—and Vela got blinded by the flash."

They also said that at least two Israeli Navy ships had sailed to the site, with a contingent of Israeli military men and nuclear experts. They were accompanied by the South African Navy, with their own experts.

Three days later, President P. W. Botha, as yet unaware that the blast had been spotted by the Americans, "wag-goned" into the Cape National Congress and warned South Africa's enemies: "If there are people who are thinking of doing something else, I suggest they think twice."

"They might find we have military weapons they do not know about."

The Vela sighting caused panic in both Washington and Tel Aviv. "People just stood there," recalled one American official.

"There was sheer panic. It was very much 'Oh dear. What do we do with this?'"

From here, Hersh drives into utopian. He says many figures in the Carter administration were secretly supportive of the Israeli ambition. It became imperative, he says, for the American president "not to know what there was to know."

In addition, President Carter would harm his re-election campaign, then about to take off, if he offended the Jewish vote.

A month later, Secretary of State Mr. Cyrus Vance told newsmen that Vela sighting offered "no conclusive evidence of a nuclear explosion."

The finding outraged senior scientists at the nuclear research institute in Los Alamos, site of the world's first atomic explosion designed by Dr. Robert Oppenheimer. The institute itself had been responsible for designing Vela.

Hersh quotes Louis Roddis, a member of the Nuclear Intelligence Panel, the most highly classified intelligence group in the U.S. government. "There was a real effort on the part of the administration to downplay it."

Deputy Under-Secretary of State Mr. Joseph Nye jun (name as received) later told Hersh. "There wasn't much that could be done. The Israelis had already done it (made a bomb). It was not something you could make a demarche about. The question is do you make a big hullabaloo about it?"

The answer was no.

In Tel Aviv, the Vela sighting caused similar panic. Hersh says the tests probably were arranged in a secret agreement with Prime Minister Yasser Arafat by former Defence Minister Mr. Shimon Peres, when Mr. Peres visited South Africa in 1977.

There was a rift between Mr. Peres and the newly-elected Prime Minister, Mr. Menachem Begin, whom Mr. Peres had treated with "contempt and ridicule throughout his career."

It is likely that Mr. Begin was not immediately aware of the South African-Israeli collusion until the Vela sighting.

Mr. Ben-Menachem says that Mr. Begin, in an attempt to get to the bottom of the matter, decided to send his newly-appointed Defence Minister Mr. Ezer Weizman to talk to Pretoria.

"Weizman came back," Mr. Ben-Menachem recalled, "and said, 'we have promised these guys nuclear warheads.' He recommended to Mr. Begin that they put up and carry out the promise."

Armsec Subsidiary May Lose Missile Test Site

620P0007C Johannesburg THE WEEKLY MAIL
in English 8-14 Nov 91 p 3

[Article by Gavin Evans. "Courtlet Fires First Salvo at Armsec Testing Site"]

[Text] The embattled Armaments Corporation of South Africa (Armsec) yesterday lost the first round in a new war building up at the Cape Supreme Court. What is at stake for Armsec is its rocket fuel testing site in the heart of an internationally recognised Kogelberg Nature Reserve in the Cape Peninsula—valued at R41-million by Armsec and R10-million by its opponents.

The Roos Els Local Council is suing Somchem (Pty) Ltd (Armsec's rocket fuel subsidiary), together with the Overberg Regional Services Council (ORSC) and the administrator of the Cape. If the Roos Els council wins, Somchem will be forced to close its operations in the reserve, which have been key to the development of its ballistic missile capacity.

Mr. Justice Harold Berman yesterday gave the reasons for his 16 October judgment, in which he ordered the ORSC to pay all the Roos Els Council's costs on a punitive (attorney-client) scale from 10 July, for unnecessary delays in furnishing a number of documents concerning Somchem's occupation of the land. Papers are currently being exchanged between the parties, but judgment is not expected until the middle of next year.

The council, which is being supported in its action by several surrounding local authorities and ratepayers' associations, is claiming that the ORSC (and its predecessor) has no authority to lease the land (known as Porton 116) to Somchem, and is asking the court to review its decisions in this regard.

What has prompted the residents to take the armaments giant to court is the noise and air pollution they believed Somchem is responsible for. The site is set in a "biodiversity hotspot" which is being submitted as southern Africa's first "biosphere reserve"—an area registered by the United Nations Educational Scientific and Cultural Organisation because of its species diversity.

For years, residents have complained of frequent day and night explosions which are described as "shockingly loud, even several kilometres away."

On some occasions these "huge booms" have been followed by a "massive plume of white smoke rising nearly a kilometre up and leaving the smell of chlorine in the air."

Until this case first came to court earlier this year, Somchem had retained total secrecy about its activities in the area. What is now acknowledged is that Somchem has two testing ranges on Porton 116—one involving the use of a large calibre howitzer for testing muzzle velocity, and the other used for testing rocket propellants.

This site is one of four involved in the production of ballistic missiles of various descriptions. Armsco's think tank, Howweta, is based in nearby Grahamstown. Somchem's head office and factory in Somerset West is used for the production of the rocket components, while the missile testing site is situated at the Overberg Test Range in the De Hoop Nature Reserve.

THE WEEKLY MAIL has documents showing that in the mid-1980s huge amounts of missile-related technology was imported from the United States, Switzerland, Germany and the Netherlands.

One document, dated 28 March 1984 and signed by Somchem official Johannes Stefanus Marais, details the import of two cases, weighing 149 kg, containing "Orbital Pressure Test Barrels," and "Parts of Military Projectiles," from Machine Tool Works Oerlikon Buhler Ltd. of Zurich, Switzerland.

Another, dated 12 September 1983, involves the import of 185 kg of "bomb calibrator and accessories" from the Parr Instrument Company, Miline, USA. Eight months later the same American company sold 7.5 kg in replacement parts for the bomb calibrator. Other imports involved large quantities of chemicals (believed to be used for missile technology) from Shell and other U.S. and European companies.

In 1989 the Roon Els Council was formed as a forum for homeowners' complaints. Two factors brought matters to a head and led to the current legal action.

First, the Caledon Divisional Council (which had previously leased the 400 ha land to Somchem for R25 a year) announced it had sold the plot to the company for R500. Then Somchem announced plans to expand its presence there (and indeed has started to build new facilities on the plot since the matter went to court.)

The Roon Els Council argues that one of the conditions set by the administrator in transferring the land to Caledon Divisional Council (and subsequently the ORSC) was that there should be no building or subdivision on it. It was, in effect, held in trust for the local ratepayers as a water storage area.

In 1985 it was declared a mountain catchment area by the government, which means that the Caledon Divisional Council was obliged to maintain it in a pristine state.

The Roon Els Council is arguing that the ORSC, in leasing the land to Somchem, did not apply its mind to these obligations, and therefore the lease is invalid. They are asking the court not only to order Somchem to leave the area, but also to restore it to its previous state.

Official on Control of Missile Sales, U.S. Ties

HK2911071291 Hong Kong THE STANDARD
in English 29 Nov 91 p D-1

[By Cary Huang]

[Text] China is willing to cooperate with the international community in the peaceful use of space technology, as well as the control of missile sales, says a senior Chinese astronautics industry official.

In an interview with THE STANDARD yesterday, Liu Jiyuan, Vice-Minister of Aero-Space Industry and Vice-President of the Chinese Society of Astronautics, said China's space science and satellite technology were mainly aimed at social productivity and economic development.

Mr Liu, a Soviet-trained astronautics expert, said China had sold a limited quantity of arms to certain countries, but these were mostly defensive rather than offensive weapons.

"China's arms sales have been much less than those by other major nations, especially the United States and the Soviet Union."

China had adopted a very cautious and responsible attitude on the issue.

"We have set strict guidelines. Firstly our arms sales should be confined to meet the defense needs of a country, and secondly such sales should not threaten the stability or security of the region," he said.

"And thirdly, our arms sales are in line with international practice and we are willing to co-operate with the international community in this field."

Mr Liu is in Hong Kong to launch an exhibition on China's aero-space technology—the first by China in the territory.

Although he had not been invited to take part in negotiations over the control of missile sales by the seven

industrialised nations China, which was not a signatory to the agreement, still followed the international practice in that field.

In response to Western criticism of China's missile exports, Mr Liu said the Western nations, the United States in particular, had exported much more missiles than China to other countries, including the Middle East.

Mr Liu added that China had co-operated with the other four permanent members of the UN Security Council when they met to discuss the problem in Paris in July and later in London. Mr Liu said both meetings had resulted in an understanding on the principle of missile sales.

The official denied China had sold missiles to Iraq.

"I had read some media reports recently which said China had exported missiles to Iraq. I know this accusation is totally groundless," he said.

When asked about the prospect of China exporting astronautics technology, the expert admitted that the U.S. ban on new export licences for satellites destined for China would have a serious effect on the industry, though many nations and international companies had shown interest in space projects.

The Bush administration last June effectively scuppered a bilateral agreement under which China would have been allowed to launch nine U.S.-manufactured satellite payloads over a six-year period.

"We hope after the improvement of Sino-American relations the situation would be better," he said.

Though he believed the American government felt its ties with the mainland were important, he did not expect a great improvement in relations in the foreseeable future.

"I thought the relations would improve following the visit to Beijing by American Secretary of State James Baker, but I do not think it has had a substantial impact at the moment. And I do not expect a great improvement in this brief space of time," he said.

JAPAN

Defense Official on Soviet Nuclear Arms Control

OWUN/2091791 Tokyo KYODO in English 1019 JMT
9 Dec 91

[Text] Tokyo, Dec. 9 KYODO—Japan is concerned about the management system of nuclear weapons deposited in three predominantly Slavic Soviet republics which announced Sunday the formation of a commonwealth, a top Defense Agency official said Monday.

Akira Hiyoshi, vice minister of defense, told reporters, "I fear the fact that the ownership of nuclear arms moving to each Soviet republic from the central government, which means fresh unstable factors could be created in international society."

The leaders of the Russian Federation, the Ukraine and Byelorussia declared the demise of the Soviet Union and that they were forming a "commonwealth of independent states."

Hiyoshi also referred to reports that the three republics will control their nuclear arsenals under united authorities, and said, "if such a control system is reliable, it would be preferable."

"I hope the United States and the Soviet Union will be able to make progress in the process of reducing their remaining nuclear arms," he said.

SOUTH KOREA

North Says Japan Is Developing Nuclear Arms

SKIN/2101191 Seoul CHUNGANG ILBO in Korean
9 Dec 91 p 7

[Report by Pak Myong-puk from Vienna]

[Text] On 7 December Chun In-chan, North Korean ambassador to its mission in Vienna, who is participating as an observer in the International Atomic Energy Agency board of directors' meeting being held in Austria's capital of Vienna, stated "Japan is promoting the development of nuclear weapons secretly. The international community must be on the watch for the possibility of Japan's development of nuclear weapons."

This claim by North Korea was the first time in which suspicions about Japan promoting the development of nuclear weapons were officially discussed in an international meeting.

A high-ranking official of the North Korean mission said, "We are picking up information from various places stating that Japan is promoting the development of nuclear weapons secretly. We know that the United States is aware of this and that it is carrying out close inspection of Japan's nuclear-related activities."

During the board of directors' meeting, the Japanese representative strongly denied North Korea's claim and reconfirmed the Japanese Government's three main policies that it does not produce, maintain, nor bring in nuclear weapons.

PRC Said Unlikely To Veto UN Nuclear Action

SKJ/2106449 Seoul TONHAP in English 1900 GMT
9 Dec 91

[Text] Seoul, Dec. 9 (YONHAP)—China is not expected to veto when issues of North Korean nuclear development program are discussed in the U.N. Security Council, a South Korean Government official said Sunday.

Given the Chinese attitude at the time of South and North Korea's simultaneous entry into the United Nations, the official said, China's position seems to be "clear" as far as North Korea's nuclear program is concerned. He did not elaborate.

The official said the government was confident the next meeting in February of the International Atomic Energy Agency (IAEA) Board of Governors would be a turning point for an international bid to stop North Korea's push to develop nuclear arms.

He said the government would promote a separate international effort to block North Korea's nuclear ambition from the IAEA's initiative in view that North Korea's nuclear scheme directly affects the security situation in the Korean peninsula.

He said representatives from the United States and Japan have proposed in the current IAEA Board of Governors meeting that the agency draw up concrete punitive measures to be used against North Korea in case North Korea should fail to sign the Nuclear Non-Proliferation Agreement until the February IAEA meeting.

PRC Chemical Company Establishes Seoul Office

SKJ/21021791 Seoul THE KOREA HERALD
in English 10 Dec 91 p 4

[Text] The Ministry of Trade and Industry has permitted the establishment of a Seoul branch office by China National Chemicals Import Export (SINOCHEM), China's largest trading firm specializing in petrochemical products.

SINOCHEM, with annual sales of \$1.5 billion last year, is the first "genuine" Chinese firm to set up a branch in Korea, ministry officials said yesterday.

Eight Chinese businessmen have obtained permission to establish branches here but all of them were either based in a third country or were Korea-China joint ventures, they said.

SINOCHEM's advance here is expected to facilitate a rush of Chinese firms to Korea, the officials said, adding that the ministry will allow other Chinese firms to

keeping with the accelerating economic ties between Seoul and Beijing, including the scheduled conclusion of a bilateral trade agreement.

Prime Korean businessmen and the Korea Foreign Trade Association (KFTA) are now operating a total 13 branch offices in Beijing and other Chinese cities.

In a related development, an increasing number of Korea's small- to medium-sized businesses have made investments in China, according to Korea Small Business Promotion Corp.

In a China investment explanation session held at the KFTA, the small businesses organization said that Korea's investment in China has totaled \$112 million on 130 projects as of the end of September.

The smaller firms' investments represented 46.2 percent of the total in terms of project number and 59.5 percent in investment amount.

Most of these investments were made to capitalize on the cheap labor in China, it said.

Joint-venture projects had accounted for more than 75 percent of total investments until 1990 but independent projects numbered 19 this year accounting for 46.9 percent of the nine-month total.

North Scientists in PRC Develop, Test Missile

SKD 7/204/99) Serial SECHI, SINMI/N of Korea
"Dae 41 p. 1

[Text] In addition to North Korea's on-going development of nuclear weapons, it sent a large number of scientists to China to develop a medium-range missile and the delivery system for nuclear weapons, and it had successfully developed its own missile.

Defense experts said on 4 December "North Korean experts successfully tested a medium-range multiple-warhead missile with a range of 800 km, at a nuclear rocket base in Yinchuan (Jilin, a northwestern province in China).

These reports also said "North Korea developed this atommodern missile with Chinese assistance. Also, China sent a launching pad for the test.

They also said "North Korea has sent 90 military and weapons experts to the nuclear rocket base in Yinchuan since 1988 and learned how to test nuclear weapons and launch missiles from China." They also said "Given the fact that North Korea successfully developed and tested the missile three years after it had sent military experts to China, North Korea must have acquired technology for testing nuclear weapons to a great extent."

They also said "In addition to its development of the medium-range missile, North Korea sent 230 Army, Navy, and Air Force weapons experts to a naval base in

Dalian on the Liaodong peninsula for training in technology for developing ship-to-ship, surface-to-surface and surface-to-air missiles or to develop them."

North Korea previously deployed an improved generation of head missiles, with a range of more than 500 km, north of the DMZ for actual combat purposes, thus including the entire Korean peninsula within their range. This was followed by the development of the "No. 1" surface-to-surface missile whose range is 1,000 km, which includes Japan within its range.

The military experts said the multiple-warhead missile, whose range is 800 km and which North Korea successfully tested, will pose a new threat to security on the Korean peninsula and the balance of power in northeast Asia.

North Korea developed the multiple-warhead missile, a strategic delivery system, with nuclear weapons development in mind. Compared to the single-warhead missile, the multiple-warhead missile is a very fearsome weapon. Also, if it is launched in Pyongyang or Wonsan, it can reach not only anywhere on the Korean peninsula but also Khabarovsk and some areas of Japan's Honshu.

RJIK Defense Ministry officials declined to confirm this. However, the latest edition of SENTAKI, a prestigious Japanese monthly magazine, reported this.

North To Sign Accord at Start of Weapons Removal

SKD 7/204/99) Serial CHUNSON (JLBN) of Korea
"Dae 9/1 p. 1

[Text] Chon In-chun, ambassador at the North Korean mission to the international organizations in Vienna, met with RJIK reporters on 6 December (Vienna time). Referring to the precondition for North Korea's signing of the No. 10 Safeguards Accord, he said "North Korea will sign the accord immediately after the United States begins withdrawing nuclear weapons from the RJIK, and officially inform North Korea of this." He also said "The nuclear facilities and nuclear bases in North and South Korea will be inspected after the DPRK-U.S. talks decide what facilities will be subjected to simultaneous inspection and when and how and whether the International Atomic Energy Agency will participate in the inspection."

However, Ambassador Kim declined to comment directly on whether North Korea will allow inspection of its facilities suspected to be facilities for nuclear development, adding "That can be decided during the DPRK-U.S. talks."

MALAYSIA

Writer Calls for Nuclear Technology Development

62121056A Kuala Lumpur BERITA HARIAN
in Malay 11 Oct 91 p 10

[Article by Kamal Ahmad, "Malaysia Developing Nuclear Technology"]

[Text] The nuclear science field, with its most modern of electric power technologies, needs to be expanded in this country. In the non-electric-power sector, the three aspects approached for Malaysia are:

- The medical industry—radiology, radiotherapy, and medical research.
- Industry—extensive use in oil exploration, oil and mineral analysis, and the testing of electronic components, and
- R & D (research and development) in agriculture and related sectors.

The UTN (Nuclear Energy Unit), as the organization responsible for encouraging, expanding, and supervising this sector, must plan and implement R & D programs for widening the use of nuclear science technology for agriculture, manufacturing, food production, and medicine.

In its R & D, the UTN has been successful in producing varieties through a laboratory process using natural rubber and Malaysian palm oil. The substance is safe and does not contaminate the environment. This success is the result of yet one more effort to diversify the use of the country's natural rubber for the sake of development and the economy. The UTN is also responsible for new strains or clones of plants and has been successful in producing the rice called "Ali's Staff."

In the field of nuclear medicine, the UTN acts as a program coordinator for the training of specialists at three large hospitals in Australia. This nine-month program involves three groups, each of which includes medical experts, physicians, pharmacists, and technicians. After undergoing training, the groups will function using the "nuclear clinic" method at the Kuala Lumpur General Hospital for the central and southern zones, the Malaysia Science University Hospital at Kajang, Kuala Lumpur (northern zone and East Coast), and the Kuching General Hospital in Sarawak (for East Malaysia).

According to UTN Director Umair (Dr. Mohd. Uthman Abdul Rahman), medical science offers a broad field for pioneering. Practical aspects in this country are minimal compared with other developing countries like India and Pakistan, which have more nuclear medicine treatment centers.

Should the use of nuclear energy, which in this country is now directed toward the non-electric-power sector, be shifted to power generation?

This question can be answered by evaluating four factors:

- To what extent will the people accept the construction of a nuclear reactor?
- Is the government able to bear the cost of building and operating a nuclear reactor and able to bear the risks?
- Where would the reactor be built?
- To what extent would Malaysian experts be able to manage a reactor?

So far, the country has depended on electric power from four sources: hydro, coal, oil, and gas. Nuclear power would be the last option.

Nevertheless, the government needs to think about planning and implementing the construction of a nuclear power reactor as preparation for any unexpected power crisis in the future. Malaysia needs to be ready and to face the fact that at some point in the future we will run out of oil and gas. This situation will hit every country in the world. Hydroelectric power generation will not accommodate the steadily rising demand of the industrial growth that will be the country's heartbeat. Even if oil and gas are not depleted, they will be more expensive, and it will not be as economical to generate power using these fuels as to use cheap uranium to produce radioactivity to drive turbines.

Malaysia is now entering the third era of power generation, namely a period of using LNU (liquefied natural gas), since oil and coal were found to contaminate the environment. Nuclear power is natural as a future source of energy because it is an up-to-date technology that is cheap, safe, and clean.

The UTN, formed in February 1985, now has enough expertise to operate a nuclear power reactor. Its 44 specialists in various aspects of nuclear science are recognized internationally and are ready to lead the way after they receive instruction and experience with the private firm that builds the reactor.

The use of nuclear power is not foreign to developing countries in the Southern Block and the Asia Pacific region. India, Pakistan, Japan, Korea, and Taiwan, for example, have nuclear reactors for generating power, while Australia, Indonesia, Malaysia, and Thailand have potential in this direction.

According to reports on latest developments, Indonesia plans to build a nuclear reactor under a project that is to begin in 1991 and is expected to be finished in 2002. The Philippines is also said to have built a nuclear reactor under the administration of former President Marcos.

The development scenarios for nuclear power in megaregions of developing countries in Asia is shown in the table.

Nuclear Power Development Scenario (in Megawatts) in Developing Countries in Asia From 1990 to 2010

Country	1990	2000	2010
Bangladesh	0	1,000-1,500	2,000-3,000
China	0	0	600-800
India	1,700	5,000-12,000	12,000-15,000
Indonesia	0	0	800-1,000
Iran	0	0-2,000	2,000-4,000
Malaysia	0	0	500-1,000
Pakistan	120	425-1,000	1,000-1,500
Philippines	0	0-20	620-1,000
Republic of Korea	1,000	10,000-15,000	17,000-20,000
Sri Lanka	0	0	600-800
Thailand	0	0	600-1,000
Total	2,720	21,000-34,000	41,000-59,700 (Figure is published)

The figures in the table were taken from a working paper presented by Budi Sudarsono at the Seminar on Oil and Gas Environmental Strategy for the Asia Pacific Region, which was held in Kuala Lumpur on 26 and 27 August. Budi Sudarsono is chief of the Energy Sources Section, Natural Energy Sources Division, of the UN Economic and Social Commission for Asia and the Pacific.

In the developed countries, 80 percent of France's electric power comes from nuclear power, Japan, 3-40 (as published) percent, and the United States, 20 percent. The United States is facing problems with oil supply and other energy sources.

It is a fact that developing countries will enter the nuclear power age. To respond to the need for electric power, which is one of the main types of "capital" for becoming a developed country, Malaysia also tends to seek alternative energy sources to reduce dependency on hydroelectric power, oil, and gas. As a future industrial country, electric power will be used to the maximum in the industrial sector besides serving the daily needs of 10 million people.

At present, Malaysia does not have a nuclear power reactor and has only a research reactor capable of generating 1 megawatt of electric power. A nuclear power reactor generates 300 to 1,000 megawatts.

UTN nuclear scientists are always looking ahead to future developments with an attitude of readiness as they conduct various kinds of research. They are receiving their training while they follow nuclear technology development throughout the world.

They are getting training through various programs in countries with nuclear reactors to ensure that they will not be left behind.

"Whether or not we have a nuclear reactor depends on government policy, but as scientists we stand by ready at all times."

"Although our experts may not be used in this country, they may be used by other countries, and at some point we may export them."

"The UTN is willing and capable to operate a nuclear power reactor at any time," said Usman ibn Mohd Ghazali.

The UTN now has 54 experts in various non-electric-power nuclear fields who are relied on by other countries for managing courses and giving lectures. The UTN focuses on certain fields it has found to be developing quickly and is increasing the number of its experts in those fields.

"If we become a member of the International Atomic Energy Agency (IAEA), we will have to sign a statement that our objective is not power (as published). We will then have access to information on peaceful use of nuclear technology," he said.

Nuclear reactor safety is properly emphasized in this country, however. An IAEA team of 10 nuclear experts, which is known as "Safeguard," once every two years conducts visits to inspect records, documents, and plans to ensure that the UTN does not violate regulations or agreements.

Malaysia can be proud that two of our citizens are "Safeguard" members responsible for inspecting nuclear reactors in other countries.

Normally, a reactor is built by a company, and then local experts become involved in jointly controlling it for a specific time while they study its management. If a second reactor is needed, local experts will run the company in building it under a joint venture.

Because of its good record in conducting and supervising R & D work, the UTN must be continued with taking the first step into the nuclear electric power era. The main point is that, for the sake of the benefit of the country and all its people, the public needs to be given an explanation of the importance of entering this field.

SINGAPORE

Company 'Entangled' in Iran Arms Scandal

BEIJING/11/490: Singapore *THE STRAITS TIMES* in English 9 Dec. 91 p. 20.

(Special report by Sandra Theperak)

[Text] A Singapore company, a subsidiary of a Miami-based corporation, has become entangled in an arms smuggling scandal.

Two Singaporeans linked to the companies, Aero Systems Private Limited, are among those under investigation by the U.S. Government for selling aircraft and missile parts to Iran.

These illegal sales are said to have played a critical role in Iran's protracted war against Iraq in the 1980s as they kept the Iranian Air Force's fleet of Phantom F-4 jets airborne.

The missile and missile parts were allegedly smuggled to Iran disguised as commercial aircraft parts and with the names of the end-user's names falsified.

Under Singapore and U.S. laws, the engineering and exporting of arms without proper licenses is illegal.

Aero Systems Pte. Ltd. has been indicated in the U.S. along with its parent company, Aero Systems Inc., and another subsidiary in Hong Kong, Hingpa, for selling millions of dollars worth of sensitive U.S.-made navigational equipment used in the Phantom jets.

Two former Aero Systems Inc. employees, both of them Americans, have also been charged.

A Tokyo-based concern, Japan Aviation Electronics, and three of its employees have also been named in the indictment.

But investigations are still going on, with people in Singapore, Hong Kong, Japan and the U.S. being probed.

One of the two Singaporeans allegedly involved is a former employee of Aero Systems Pte. Ltd. while the other is still with the company.

When contacted, both of them said they did not want to comment.

Asked if he was aware of being investigated, the current employee of Aero Systems Pte. Ltd. said, "I don't know anything and I don't want to know anything."

A STRAITS TIMES investigation spanning three countries—the United States, Japan and Hong Kong—also revealed that more Singaporeans could be involved in the case.

THE STRAITS TIMES also requested documents from the U.S. Attorney's Office in Washington DC detailing the charges.

Singaporeans from the same company have also been implicated in a related investigation in Japan, where the government is carrying out its own probe into the illegal sale of Sidewinder air-to-air missile parts to Iran.

Japan Aviation Electronics (JAE) is alleged to have received and sold US\$25 million (S\$10 million) [Singapore currency] worth of Sidewinder missile parts for the Miami-based Aero Systems Inc., knowing those parts would be diverted to Iran through Aero Systems Hong Kong and Singapore subsidiaries.

Among the parts was a device known as a "tailcoat" which is used at the rear edge of the missile's four main lifting fins. According to weapons experts, it is vital to the accurate guidance of the heat-seeking missile to its target.

When contacted by THE STRAITS TIMES, the U.S. Customs Co., based in Miami, confirmed that some Singaporean parties were involved in the deal but a spokesman for the department declined to disclose the names.

But based on other sources in the U.S., Japan, Hong Kong and Singapore, THE STRAITS TIMES managed to obtain the names of two Singaporeans.

According to U.S. Customs, JAE told the investigators of the requests of Aero Systems subsidiaries to "find" companies of the Iranian armed forces.

This was in violation of the U.S. Arms Export Control Act and the International Traffic in Arms Regulations.

The parts used in Phantom jets which JAE is charged with selling to Iran were purchased from the Japanese firm of Mitsubishi and components made by Los Angeles-based Litton Systems Inc. for use in the fighters' inertial navigational system.

Connections and subcontractors are used to determine the exact processes of getting.

According to the indictment, JAE held a licensing agreement with Litton Systems Inc. to make the navigational components and sell them to the Japanese military.

Several companies through Aero Systems subsidiaries sell the parts to "third" companies of Iranian military.

The indictment also charges former Aero Systems executives, Colin Driscoll and Wayne Wapman, both Australian citizens, and three JAE employees—Hiromichi Takahashi, Tadatoshi Murakami and Toshiro Iida—of conspiring to buy components from Mitsubishi and re-sell them illegally to the Iranian companies.

The equipment was used to Iran between 1984 and 1987 during a critical phase of the Iran-Iraq war, said the U.S. Customs spokesman.

"We believe it was a critical element in maintaining Iran's fighting capability," he said.

Selling arms to Iran has been illegal in Japan and the U.S. since the taking of American hostages in 1979.

But Iran, with a huge arsenal of U.S. arms captured during the night of the Shah, needed spare parts and equipment to keep those weapons operating.

Hongkong sources said the usual procedure was for Farnam, an arms procurement company in Iran, to send a request for quotes to Farnam or Cold Mountain, Iranian-owned companies in Hongkong, which would source the supplies in the U.S. and Japan.

When the order was finally placed, the parts would be shipped to some location in Singapore for re-shipping to Farnam or the Iranian-owned companies in Hong Kong again.

In many cases, invoices and other billing documents were said to be issued by others as Farnam or Cold Mountain, which would eventually make payments through the Bank of China branch in Hong Kong.

A check of the company records in Hong Kong showed that Farnam and Cold Mountain are companies owned by three Iranian merchants—Ayman Valizadeh Mogh, Shahpour Akbarpour and Elwood Salimian.

BULGARIA

Ukraine 'Will Destroy' Nuclear Arms

01/11/1991 Paris AFP in English 170 words
11 Jan 91

[Tass] Sofia, Dec 11 AFPs—Ukraine will destroy all its nuclear weapons within seven years, the republic's foreign minister Anatoli Zorin said from Prague. "But if other interested countries bring us materials, the time period could be cut to three to four years," he said during a meeting with his Bulgarian counterpart Stoyan Ganev, an official Bulgarian source reported. Ukraine approved the destruction of all the nuclear weapons on its territory and this would take place in three stages over a seven-year time period, Zorin said, according to the official source.

Ganev and Zorin signed a protocol Friday establishing diplomatic relations between the two countries, it begins with an earlier announcement.

The Ukrainian diplomat chief also said that the seven nuclear arms lodged in the premises of Ukraine, Russia, Britain and Kazakhstan should be placed under the republic's control. "Ukraine wants to take control of the nuclear weapons on its territory so that they will never be used," he said.

Ganev, for his part, pledged that a Bulgarian ambassador would be dispatched to Kiev in a few weeks.

Kuterev, Arms Company Director on Weapons Trade

01/11/1991 Sofia 24 (144) in Bulgarian
14 Jan 91 x 1

[Interview with Kater Sandzhov, Kuterev director general, to Vozrozhda Gueorgieva, plant and fair organizer. "Local Conflicts Against Short-Range Weapons, Kuterev Also Seeks a Little in the United States"]

[Tass] (Kucheva) Mr. Sandzhov, who recently in the country has given you official permission to trade in weapons and ammunition?

[Sandzhov] Kuterev and the Main Engineering Administration have licenses. It is also envisaged that the two current associations, which is waiting to be registered, will be given permission to trade with restricted responsibility. This is an association of manufacturers and traders from the defense complex, established with government permission. A special government commission on weapons and ammunition production and trade issues report authorizations.

[Kucheva] Is it true that private Bulgarian companies are involved in weapons dealing at the moment on the foreign market?

[Sandzhov] If this has happened, it is illegal. Private companies at present do not have licenses.

[Kucheva] What will happen, nevertheless, if private companies enter the arms trade?

[Sandzhov] Perhaps in a year's time, there will be the norm. However, at the moment, when defense production is state owned and is encouraged to contract so, it is not advantageous for the arms trade to be in too many hands. If too many traders appear, the price of Bulgarian weapons will fall.

[Kucheva] There are rumors that Bulgaria trades weapons on the black market worldwide.

[Sandzhov] That is ridiculous. There are official transactions with official deliveries of arms and ammunition ordered through the defense ministries of specific countries to meet their needs. Kuterev is not involved in smuggling. The black market tries to give the private trader who sells 100-200 submachine guns, but that is nothing. It is impossible that there are such suspicions about Kuterev. These grow from the state-centered culture of information concerning arms deals. There was a similar suspicion abroad toward the Hungarian Trichkov and Czech (smuggler) companies, but it gradually disappeared. Fortunately some of our partners backed out of deals, but probably we lost potential new clients.

[Kucheva] Nevertheless, Kuterev's name was mixed up in the incident a month and a half ago, when the Soviet boat Cape Mayan was directed by the Turkish authorities.

[Sandzhov] This was our official delivery to the Turkish side that the arms are the concern of our client. The Turkish customs officials detained the boat's captain, who obviously claims that it was a matter of a misunderstanding between him and the authorities. This incident did not draw so much attention, and the idea that most smuggling went on through the Bulgarians was ridiculously blown out of proportion.

[Kucheva] Mr. Sandzhov, during recent months, have any Bulgarian arms gone to Yugoslavia?

[Sandzhov] No. Right at the beginning of the conflict we adopted a strict restriction. Different requests for arms deals were made to us by various South Chinese and Slavonic, but we declined them.

[Kucheva] Do you sense lively activities in the arms market at the moment?

[Sandzhov] The issue of the market is not at its best, despite the fact that it is coming out of the sales depression that began somewhere after 1985. Improvement of the ending of many conflicts that stretched a great deal of weapons, a full has not yet seen the world arms trade. Local conflicts are fewer now and a constant stream of sales can be felt.

[Kucheva] What, at the moment, is the fate of the arms market?

[Santolucito:] There is no big difference between our weapons according to their financial capabilities and national security interests. However strange it is, not only American but also Russian aircraft have been in great demand recently, especially those models that the Russians did not offer for export until recently. (The Su-26 and MiG-29, for example.) Large tanks, precision air systems of the sort used in the Gulf, and means of air-ground defense are sought after.

[Gastrow:] What type of aircraft does Russia have?

[Santolucito:] A variety and great. We are now doing our best in acquiring other partners. The Arab countries, Africa, and Asia are the traditional customers of Bulgaria's arms production. This year we managed to export a very small amount to the United States and England.

[Gastrow:] How much does the state make from this trade?

[Santolucito:] A great deal.

[Gastrow:] We are talking about an export profit, are we not?

[Santolucito:] It is ridiculous to talk about an export profit in our case of business. Our deal price is higher than that. According to the information I have, nobody's reports are greater than Russia's this year. Figures from the Ministry of Foreign Economic Relations used to be quoted, and a classification showing export performance used to be produced. For years on end, we headed this classification and had our competition. (Santolucito)

[Gastrow:] Does the state help your profitable business?

[Santolucito:] The state does not take any action of or of all, but I also do not need subsidies. It is rather the state that needs us because we pay export taxes and the budget must be satisfied. The taxes are tolerable for us, but the one thing that is making these few steps and are having to correct them are taxes.

CZECHOSLOVAKIA

Changed Director Views Arms Sales to Pakistan

OFFICIALS: Prague BELADIA PRAHA (JPRS),
in Czech 9 Dec 91 p 4

[Interview with Stanislav Kucera, Director general of Foreign Trade, Ministry of Foreign Affairs, Prague:] The Czech Republic has not a foreign loan.

[Text:] Some observations on arms sales have also changed within the context of Prime Minister Cizik's visit to Pakistan and China. Therefore, we asked Stanislav Kucera, Director general of Foreign Trade, Ministry of Foreign Affairs, who reported with the delegation, as a member of the group of Czechoslovak industrialists for an inter-

[Santolucito:] In an interview for our paper, Foreign Trade Minister Josef Baksar said that the government has not granted arms permission on all arms to Pakistan. Nevertheless, we allegedly and successfully negotiations in Islamabad.

[Kucera:] Pakistan is a partner of long standing, and we signed a contract in the sale of ground technology. Of course, exports are subject to permission from the Federal Ministry of Foreign Trade (according to our administrative system, however, a Federal Ministry of Foreign Trade representative directly participated in the negotiations in Islamabad, and the joint the question of permission into a completely different light—either's case).

[Santolucito:] Have you also referred our arms for sale to China?

[Kucera:] It was not market analysis. So far, we have not supplied anything there.

[Santolucito:] Where in the world are your best customers?

[Kucera:] Ministry of Defense. It used to be the Middle East, but our government's demands make exports to this region almost impossible.

[Santolucito:] Specifically, how many countries does this involve?

[Kucera:] There are several dozens of them.

[Santolucito:] What Czechoslovakia's contribution (price) recently dropped was of arms of your significant loss?

[Kucera:] Yes, the market price of arms for export is well known to the public.

[Santolucito:] The ministry is in great difficulty. Can you find that meeting requests of Czechoslovak arms our further broad this issue?

[Kucera:] Certainly, but through underground and reports the prices of the Federal Government.

[Santolucito:] Do you feel the request of other cooperation is more like exclusive report? There is a lot of other report.

[Kucera:] There have been other attempts to provide information on all arms and technology. An agreement in Pakistan, a contract on land control. There were plans to build a bridge, but nothing is well in progress. It is a fact, however, that not only because they (Pakistan) accept half the regular price. It is that more important that, financially speaking, the usual arms price is not sufficient to cover the costs of their equipment.

[Santolucito:] So, what is the present situation of our arms exports?

[Kucera] The volume is rapidly declining, particularly as a result of the disintegration of the Soviet market.

[Buckert] Is it as all possible to make the Czechoslovak arms trade public to the point of dispelling doubts concerning its respectability?

[Kucera] It would be possible technically, but commercially, because of competition, any information would be short-lived. I would like to point out that arms sales are also a political issue for us.

[Buckert] Arms exports are declining. Will this also have an effect on CERNIPRA's operation?

[Kucera] This year arms represent 60 percent of our turnover and we expect that this figure will be smaller next year.

[Prague] MILADA FRONTA DNEŠ is Czech on 10 December on page 11, in the "From Home" column publishes a 40-word report that adds: "Special technology equipment to the Pakistan Army were the subject of negotiations by Václav Kucera and CERNIPRA, director who, together with the Federal Foreign Trade Ministry section, even met with the Pakistani Armed Forces chief of staff."

YUGOSLAVIA

Production of Chemical Weapons Near Monar

©1991-144 Zagreb 1 JLSNK in Serbian language
In No. 4 p. 3

[Article by Miro Jelenković]

[Text] Monar—Those who did their required military service in special ABK [Arms-Biological-Chemical] units of the Army last month that they handled chemical weapons during their specialized training. ABK sections exist in every military formation of any size, but they do not all go through the same training. The best-known training ground for members of this unit is not far from Skopje. We have learned from recruits who trained at that facility that officers of the JA [Yugoslav Army] "received" them with chemical weapons so that they could gain a better mastery of the signs "Recognition of Chemical Weapons." They worked under full ABK protection and with greatly diluted venoms, but still they recall they were not indifferent when after an analysis of samples of the instruments they read nerve blood or blister gas.

In spite of the detail before the public world, the Army concentrations does possess this type of weapons. Arms specialists might say: These are diluted venoms. But it must be borne in mind that neither concentration nor "diluted venoms" have ever been an article of international transactions in the arms trade. Which leads to another conclusion. The JA is itself manufacturing these "diluted venoms" for training purposes. But is it not

problem for someone manufacturing the "diluted venoms" to also produce the authentic chemical weapons? The question certainly arises. Where are the "death factories" located?

Behind Barbed Wire and a Mine Field

In spite of the demilitarization that has opened a gap that until recently was closed under all kinds, this topic is still classified as "strictly confidential." But that "strictly confidential" does not have the importance today it once had. People are talking more freely. And although there are discrepancies in the stories about the location of chemical weapons factories, on one point they agree that the "large" chemical weapons factory is in the settlement Vrapčić, a few kilometers north of Monar. In that settlement, one sees a rather low building enclosed at a radius of 1 km by two barbed wire fences. There is an interval of some 10 meters between the first and second barbed wire fences and most likely a mine field. So far, no one has dared to check. It is impossible to verify the activity of that village facility through official channels. Military officers, however, have never denied the numerous rumors about the "conclusion" as a site for weapons production. That is enough to arouse reasonable doubts.

There is no dispute that the construction work on the "conclusion" was completed in 1965. Although then the local people noted "abnormally deep foundations," which means that most of the installation is beneath the surface in the hard stone ground of Herceg-Novi, it seems that the key step in the operation of this installation was 1977. One retired officer of the JA told us that special factories were imported for the factory from France that year. These are factories of a kind with thick steel walls and plugs of special gold alloys, 2 x 4 meters in size, the kind that are indispensable in the process of manufacturing chemical weapons. According to what we were told, these factories were delivered to the French firm "De Chemet" secretly by order of the upper echelons. However, it could be that the French trading partners were deceived concerning the purpose of these factories, because the entire transaction was wrapped in "civilian clothing." The importation was done by the Yugoslav firm "Medikament." This transaction, then, can well count with in the chronology of these events.

One Cross Explored

The original nature of the factory in Vrapčić is compounded by the strong security measures of professional soldiers and armed military-trained dogs, who constantly patrol the enclosure. Lighting has been installed that would do justice to the stadium of the HASK (Yugoslav Amateur Soccer Club). The number of personnel is unknown, but the official structure is known. All the employees are Serbs or Montenegrins. Experts have been drawn from Soviet Belgrade, Paris, and Zrenjanin while the rest are "local." There is one Croat employed in the factory, the drummer in whose fellow members of the orchestra give a wide berth. Now

workers are hired, from the cleaning women to the janitors exclusively to the direct and immediate division of workers in the VRSN (Federal Secretariat for National Defense). First, members of military units make the limited use of the potential worker "from gross-proizvoditelstvo to the present day." But regardless of the selection, people understand that the pressure from the nature and requirements of the work.

In terms of the factories imported there from France, it is possible from components used in the chemical industry (usually the chemical industry) or manufacturing "water," "water," "water." Until recently, most of the factory's capacity was oriented toward manufacturing one gas. It was packed in metal canisters marked "C3-4." The remainder of production here is also performed under code names. Most of the employees do not even know what they are making. The production process is so organized that only a few supervisors know all the details. The operators themselves only receive an order like components A, B, C in such-and-such proportions, at such-and-such a temperature under such-and-such pressure. Members of VRSN units from Zagreb recall that they could read on the instructions several types of chemical weapons: nerve gases, paralytic gases, and blood gases.

Our study concerning the factory in Vrgorac indicates the possibility that the finishing phase of "processing" takes place somewhere in Serbia. Those with whom we talked at the Ljuban engineers factory near Ljuban, it could be that they did various kinds of constructional machines here with chemical weapons. This is indicated because refrigerated trucks with license plates from Croatia, Paterson, Kruševac, and Belgrade visit the factory in Vrgorac. The trucks are always at night and when

a truck is leaving the "warehouse," military police units completely block the main highway between Zagreb and Mostar.

Local People Without Water

A dispute between the local people and the Yugoslavian factory is indicative. Five extremely strong water pumps, sufficient in capacity to supply Mostar, were installed at the local water source to meet the needs of production. When they were installed, the local people were promised that they would operate only two hours a day. But sometimes they operate 24 hours, and many local people are demanding to stop with even though they are connected to the water supply. All the protests of the local people because of failure to respect the agreement have been in vain. The Army is not accountable to pressure Vrgorac. The strain from the failure of the people of Vrgorac has been getting thicker and thicker, which indicates that production is being stepped up. The Serbian culture is well-known for its above-average number of registered malignancies, and some of the members of the Party of Communists from Mostar are inclined to the assertion that all of this should be attributed to the plant in Vrgorac. It was once said that this occurred because of the increased, mass application of pesticides, but the "Communists" say: In the Serbian culture, pesticides are not used more than they are in other regions."

The chemicals with which we contacted us that the process of manufacturing chemical weapons under the conditions described cannot be technically sealed, and they allow a direct connection between that production and the above-average number of malignancies. Everything that is taking place there is a secret only for those who are most threatened. There is no doubt that someone or foreign intelligence services could influence VRSN's studies in much greater detail and with a much less obvious investigation effort. But

ARGENTINA

Morsem To Sign Vienna Nuclear Safeguard Treaty

PT 161/20/1991 Buenos Aires MOTHERS
0804 VTN 45 in Spanish 2121 GMT 9 Dec 91

[Text] Buenos Aires, 9 Dec (NAs)—President Carlos Menem will travel on 12 December to Vienna, Austria, to Vienna, Menem and Brazilian President Fernando Collor de Mello will sign a nuclear safeguard treaty with the International Atomic Energy Agency (IAEA).

Menem is scheduled to leave Vienna on 13 December directly for Brasilia where he will hold a two-day meeting with his colleagues from the Mercosur (Common Market of the South). During that meeting the Mercosur presidents will discuss regional issues.

The announcement about Menem's unscheduled trip to Europe was made tonight by presidential spokesman Humberto Toledo. Toledo said that the Argentine and Brazilian Foreign Ministers had reached an agreement to sign the treaty now instead of next year as it was originally thought.

Toledo said that Menem had decided to set ahead the signing of the agreement, because Collor de Mello is scheduled to leave tonight for Vienna on an official visit.

Menem will arrive in Vienna on 12 December to sign the Argentine-Brazilian agreement with the IAEA. He will stay in Vienna until 15 December when he is scheduled to fly to Brasilia.

In Brasilia, Menem, along with President Collor de Mello from Brazil, Andres Rodriguez from Paraguay, and Luis Alberto Lacalle Herrera from Uruguay, will meet on 16 and 17 December within the framework of periodic Mercosur negotiations.

Presidential spokesman Humberto Toledo noted that through the agreement, the two countries seek "to lend transparency to their nuclear programs." The two countries signed a nuclear agreement at the bilateral level earlier this year.

The Vienna agreement will be signed between Argentina, Brazil and the IAEA, which is in charge of ensuring the peaceful use of nuclear energy worldwide.

Toledo also stressed "the international importance" of the agreement to be signed in Vienna. He added that in its last meeting in London, the Group of Seven had entered an entire paragraph in its last document praising the nuclear agreement achieved by Argentina and Brazil.

Nuclear Agreement With Brazil Detailed

PT 161/22/1991 Buenos Aires TELAM in Spanish
0804 GMT 12 Dec 91

[Text] Buenos Aires, 12 Dec (TELAM)—The National Commission for Atomic Energy (CNEA) has released some details about the agreement on nuclear policy that

will be signed in Vienna by Argentine President Carlos Menem and Brazilian President Fernando Collor de Mello.

The agreement will be signed by the permanent representatives of the two countries accredited to the IAEA (International Atomic Energy Agency) Jorge Tassara and Theresia Maria Machado Quinterola from Argentina and Brazil respectively, and IAEA Director General Hans Blix and Jorge Coll, a CNEA official and secretary of the Brazilian-Argentine Agency of Accounting and Control of Nuclear Material (Agencia Brasileira Argentina de Contabilidad y Control de Materiales Nucleares—ABCAAC) [as received].

Brazil and Argentina will then sponsor the implementation of safeguarding measures to verify the use for exclusively peaceful purposes of their nuclear installations, which will be subject to inspections by the ABCAC and the IAEA.

After the signing, which will take place at IAEA headquarters in Vienna, the IAEA board of governors—which will be presided over by IAEA President Masatoshi Mochizuki and Carl Kasper—will hold a special session with the participation of Menem and Collor.

This agreement and one signed in Guadalajara on 14 July 1991 are in keeping with the commitments established in the declaration about a common nuclear policy between the two countries signed by Menem and Collor in Foz de Iguaçu in November 1991.

The ABCAC was created by the Guadalajara agreement and its purpose is to implement a common supervisory system to verify the use of atomic installations for exclusively peaceful purposes.

BRAZIL

Aid to Rebuilding Iranian Reactors Discussed

PT 161/23/1991 Brasilia (0804) in Spanish 0804 VTN
in Portuguese 0804 GMT 13 Dec 91

[Amado by Lancia, Sina]

[Text] Brazil could take part in the reconstruction of two nuclear plants in Iran, destroyed during the Iran-Iraq war. Their design is similar to that of the Atoms II and Atoms III plants under construction on the coast of Bushehr. The matter was discussed during the two visits which Iran's Supreme Minister of Intelligence, paid to Tehran in the last four months and should agree to the agenda at Iran's invitation, during the meetings between Foreign Affairs Minister Francisco Reuter and his Afghan colleague, Iran's minister of foreign affairs and work in Tehran.

The Bushehr I and II nuclear plants were under construction in 1980 when the war broke out and were destroyed by Iraqi aerial bombs during the last decade.

When the war ended, Iran attempted to resume construction, but the German Government decided to furnish Kraftwerk Union (K.W.U.) a Siemens subsidiary in the nuclear area, to continue with the project.

Although much of the necessary equipment for the installation of the plants is already in Iran, the German Government canceled the export license for the nuclear engineering services needed to complete the project and to set up the two plants, and even required K.W.U. to return the money received from Iran in payment for these services.

Package

Brazil is in the final stretch toward the signing of a huge package deal, valued at least \$5 billion, to provide equipment and services to Iran. It is on the basis of the opening that Iran is seeking to obtain a counterpart commitment from Brazil to rebuild its nuclear plants. The German firm Hochtief, responsible for the civil construction on the two plants, withdraws its services, leaving Buschete I with 60 percent of the construction completed and Buschete II with 20 percent.

What Iran wants from Brazil now is a commitment to complete the civil construction, to provide engineering services through Nucleon (Nucletron Engineering, Inc., a subsidiary of Elettronica [Brazilian Electric Power Company, Inc.]) to manufacture some equipment which the Iranians need, and to install the primary and secondary steam generation circuits. Later on, new contracts could be signed for the production of fuel. For the plants' first fuel charge, Iran already has a contract with Urenco (a company with German, British, and Dutch capital, headquartered in Almere, in the Netherlands) for the necessary uranium enrichment.

It will be very difficult for the Brazilian Government to meet Iranian plans for collaboration in its nuclear program because, among other things, Brazilian companies are on the verge of closing the following deals: an \$800-million contract for construction, by the Andrade Construction Company, of the Karun 3 hydroelectric plant; a \$700-million contract for Malindi to supply cars for the Tehran metro; a contract for the Zafiro company to furnish seven sugar and alcohol plants, at an estimated value of \$700 million to \$800 million, and the possibility of a slice of a mammoth contract to rebuild several cities and highways, with a total value of several billion dollars.

(Rev. 9 08)

K.W.U. Doubtful

Christian Klose, K.W.U. representative in Brazil told *O GLOBO* (BRAZILIAN) yesterday that he does not believe Brazil is equipped to provide the engineering services needed to complete the two Iranian nuclear plants and, even if it were possible, he feels that the Brazilian-German Nuclear Accord would prohibit Brazil from passing the technology that was transferred to it by

Germans on to a third country (that the German Government itself has cut off). Francisco Noronha, vice president of Abnuc (Brazilian Nuclear Energy Association) disputed Klose's opinion and assured that Nucleon has the capacity to provide the engineering services for completion of the plants and that, through Nucleon (Nucletron Heavy Equipment, a subsidiary of the National Nuclear Energy Commission [CNEN] located in Ilheus, Rio de Janeiro) and other national industries, Brazil is also capable of manufacturing 65 percent of the secondary circuit equipment and 100 percent of the primary circuit equipment to generate steam for a nuclear plant.

Luiz Fernando Benetton, spokesman for Nucleon, assured yesterday that the nuclear question is not on the agenda of Minister Kozak's meetings with Iranian officials next Monday, Tuesday, and Wednesday.

Given the sensitivity of the Agra II and III projects to Buschete I and II, if Brazil does not agree to the deal proposed by Iran, it will only be for political reasons, because, according to those in the sector from an economic and technological standpoint it would be the salvation of the Brazilian nuclear industry. Nucleon and other companies are about to demolish a highly specialized labor force, trained during the 16 years in which the Brazilian-German Nuclear Accord has been in effect.

Argentine Quality Control Center Transferred

O GLOBO (BR. San Paulo) GAZETA MERCANTIL, in Portuguese 6 Nov. 93 p. 17.

(Article by Paulo Tosti)

[Text: Buenos Aires—Latin America's most advanced industrial quality control center for processes and services is being transferred from Argentina to Brazil. What it involves is a project for nondestructive testing and quality testing which until now has been carried out by Argentina's National Atomic Energy Commission (CNEA) under the supervision of the International Atomic Energy Agency (IAEA) but which will now be expanded and set up in the city of Lemeira in San Paulo State—19 km northwest of San Paulo—under the sponsorship of the United Nations.

In Argentina, the project—known technically as IIA 6 800—specialized in quality control in connection with nuclear activities for peaceful purposes, and over the past two decades, it has trained over 20,000 engineers and technicians from 14 countries in Latin America and the Caribbean.

There are two reasons for transferring it to Brazil. First, the countries of the region have decided to expand the project's objectives so that it will now be concerned not only with nuclear quality control but also with "total quality control," meaning that it will embrace all the other technological disciplines. And Lemeira is best suited to be the site of the project, since it is a model

responsibility on the contractors because of its infrastructure with respect to water, sewage, and electricity (it is the first Brazilian city where water and sewage are almost 100-percent treated) and because it is located in a region with a highly developed metal engineering industry—the immediate beneficiaries of the services that the new center will be able to provide.

To house the project's facilities, the Lameira municipal government, with the cooperation of 92 firms in the region, is constructing a building that will be ready in March of next year. Laboratories having everything they need to test equipment and the quality of life will be installed on 100,000 square meters of land. The center's main purpose, however, will be to train specialized manpower in the field of quality engineering.

"Nondestructive testing" is the technical name for a method of testing durability, fatigue strength, and adaptation to operating conditions which can be carried out without damaging the product—or interrupting the service. "To explain it simply and unscientifically, it would be like taking a x-ray of the human body in order to make a diagnosis with no need for surgery," says diplomat Zdzislaw Warzyw, coordinator of studies and development for the Brazilian Cooperation Agency (ABC), which is the agency of the Ministry of Foreign Affairs in charge of contacts with the UN Development Program (UNDP).

In Brazil, Penntec is a pioneer in the development of nondestructive testing, which is first used to test the quality of drill bits. The government-owned petroleum company helped establish the Brazilian Association for Nondestructive Testing (ABENDT), which, with the participation of private firms, has set up quality control labs at various places around the country. The intention is to coordinate these activities in Lameira.

All financial contributions by the UNDP to the Lameira project—which now has the new name of RIA 8-81—will be outright grants. The Lameira municipal government will provide the infrastructure necessary for operating the center. Since UN contributions cannot go to state-owned organizations, the Lameira Foundation has been established with the participation of domestic firms and centers devoted to quality control and nondestructive testing. That foundation will administer the center's funds.

The mayor of Lameira, engineer Paterson Paulo Venâncio D'Andrade (PRN [National Reconstruction Party]), who is a Brazilian Aires to oversee the transfer of equipment and visit the project facilities operated by the CNEA, said that transforming his municipality, which has a population of 25,000, into a center for advanced scientific development with a "large aggregation of gray matter" is a dream he has been nourishing since the 1960's, when he was first elected. This is D'Andrade's third term as mayor.

Difficulty in Passage of Nuclear Accord Seen

Vienna Still on Agenda

925M01107 San Paulo GAZETA MERCANTIL
in Portuguese 23-25 Nov 91 p. 1

(By Maria Thelma Tachinardi)

[Text] Brazil and Argentina concluded a comprehensive safeguards agreement last week with the International Atomic Energy Agency (IAEA), headquartered in Vienna. Itamaraty's Secretary General for Foreign Policy Marcos Azambuja announced on Friday.

The document cannot be signed, however, until later Congress ratifies the agreement for exclusively peaceful use of nuclear energy that was signed last year in Forquilha and complemented this past July by the creation of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) in Ciudad Juarez (Mexico) during the first Ibero-American summit meeting.

The Argentine Congress has already ratified the agreement. President Carlos Menem will only travel to Vienna to meet with President Fernando Collor de Mello if the National Congress approves the bilateral agreement. That would enable the two countries to sign the comprehensive commitments with the IAEA that will permit Brazil and Argentina to safeguard their industrial and technological secrets, and even to build nuclear-propelled vehicles like the nuclear submarine.

This newspaper has learned, however, that it is unlikely that the Brazilian legislature will approve the Brazil-Argentine agreement before its current session ends. Despite the difficulties of winning approval, Itamaraty is counting on that possibility and has already concluded a stop in Vienna on President Collor's calendar for December. It would occur on the 11th, after his visit to Rome on the 10th and 12th.

It will be harder to get the Brazilian Congress to approve the agreement with the IAEA than the bilateral agreement with Argentina. That is because the latter Chamber of Deputies Congressional Investigation Committee (CPI) on nuclear affairs concluded that inspection of Brazilian nuclear energy activities by international bodies would not be welcomed, as these activities are considered to be internal affairs of this country.

Preservation of rights of access to nuclear technology was a victory that the Brazilians and Argentines won after months of negotiation with the IAEA, which has signed agreements, similar to the one that Brazil and Argentina will sign, with major powers that are not militarily nuclearized, such as Japan, Sweden, and Germany. Azambuja commented.

The safeguards agreement with the IAEA will enable the agency to check whether the commitments assumed by the two countries, i.e., to guarantee only the peaceful use of

atomic energy, are in fact being observed and that no nuclear materials are being diverted to war purposes.

According to what this newspaper has learned, the safeguards agreement will not hamper the technological development of Brazil or Argentina. Both will be able, if they so desire, to enrich uranium in order to make the bomb, but the commitment they have assumed is not to make one. The control is exercised over the materials, not the technology, a diplomatic source pointed out.

"We have tried to coach the accord so as to preserve development of technological capabilities and the possibility of doing research, and so far we have succeeded through a great deal of effort," the source added.

On 9 December, Brazil and Argentina will meet with the Binational Commission on Nuclear Energy in Buenos Aires. The two countries have been cooperating in this field since the end of 1985.

Opposition in Congress

*OSMILIND, São Paulo: GAZETA MERCANTIL
in Portuguese 27 Nov 91 p. 11*

[By Maria Helena Tachibana]

[Text] The head of the Strategic Affairs Secretariat, Pedro Paulo Leon Raimon, will testify tomorrow before the Chamber of Deputies Committee on National Defense concerning the agreement that Brazil and Argentina plan to sign with the International Atomic Energy Agency (IAEA), whose headquarters are in Vienna.

The subject is arousing a great deal of controversy in Congress. Deputy Mauro Borges (PDS-GO) [Christian Democratic Party—Goiás State], a member of the Committee on National Defense and author of a formal request calling Leon Raimon to testify, considers the agreement with the IAEA that was concluded last week an "intentional signature" ["assinatura branca"] of the famous Treaty on the Non-Proliferation of Nuclear Weapons (TNP), which has been unanimously repudiated by all Brazilian governments since its implementation on 1 July 1968.

In Borges's opinion, the "interventionism by the IAEA" might permit the group of seven most industrialized nations, like G-7, to interfere with Brazil's autonomous technological development.

If President Fernando Collor and Carlos Menem are to sign the safeguards agreement with the IAEA on 11 December, the Congress must approve the bilateral Brazil-Argentina agreement on the peaceful use of nuclear energy, signed in Guadalajara in July of this year.

Legislation on it is unlikely that this accord will be ratified before the 1 Feb. It has already passed through the Committee on Foreign Relations, which defined the

contents of the document. Since Brasília it has been proceeding simultaneously through the committees on national defense and science and technology.

Not until the end of that process will it be sent to the Committee on the Constitution and Justice, which pays more attention to the form of a measure than to its content.

Advisors to the Committee on Science and Technology told this newspaper that the subject will not be handled in haste, because it is a delicate one. But they add that the accord is good for Brazil because "it is an insurance policy against an attempt to persuade us to sign the TNP." The problem is not the Brazil-Argentina mutual verification agreement, but the one the two countries intend to sign with the IAEA, say these same sources. As humanitarian diplomats are also worried about the problems that the agreement with the IAEA will face in Congress. Waiting for legislative approval are about 30 accords signed with Argentina.

Uranium Enriched by Laser on Lab Scale

*OLIMPIC 11 Brasília: CORREIO BRASILEIRO
in Portuguese 29 Oct 91 p. 11*

[Article by Laercio Silva]

[Text] Brazil has just taken an important step in the mastery of nuclear technology with its discovery of the process for enriching uranium by laser. That technology has been sought by scientific powers such as France and Japan for at least two decades. The process was developed by the Institute of Advanced Studies at the Aerospace Technology Center (CTA) in São José dos Campos, São Paulo. With its mastery of the technology, Brazil can become an exporter of enriched uranium to countries lacking fuel of their own for nuclear power plants.

Unlike the "official" nuclear program outlined in the Cooperation Agreement for Peaceful Uses of Nuclear Energy, which Brazil has had with Germany since 1973, the "parallel" nuclear programs have been producing surprising results in recent years. Moves to reach the uranium enrichment stage of the nuclear fuel cycle, the parallel programs in question achieved two important victories. The first was when the Sãos succeeded in mastering the centrifugation technology at its research center in Aramar near Sorocaba in São Paulo. The second was the discovery by the Ministry of Agriculture in cooperation with Campinas State University (Unicamp) at its Institute of Advanced Studies in São José dos Campos.

The Ministry of Agriculture had been researching uranium enrichment by the laser process for almost 11 years. The man who thought up the process in its Brazilian version was the late Prof. Sérgio Pires, who headed Unicamp's Center for Laser Studies. He acquired the concept for the process through scientific exchanges with colleagues at the Soviet Union. He kept his scientific

secretly locked in a safe in his classroom at Unicamp, and only he and the archer of the university knew the combination. After he died, his followers took over the contract with the Ministry of Aeronautics.

This Brazilian discovery is bound to receive a lot of attention in scientific circles and the specialized press, mainly because it has been confirmed by the Institute of Aeronautics, General Secretaries Monteiro. The reason is that uranium enrichment by the laser process is the definitive solution for ensuring an abundant low-cost supply of that strategic material for the nuclear industry. If the Brazilian researchers can make the process work on an industrial scale—what they have done so far is enrich uranium in the laboratory—Brazil may flood the international market with enriched uranium, since the laser process is theoretically much cheaper than centrifugation, which is the cheapest of the three processes currently in use on an industrial scale. It was developed by the Navy and adopted by the European consortium Urenco, which is one of the market's chief suppliers and from which Brazil also buys enriched uranium for use in the Angra nuclear power plant.

With this success by the Ministry of Aeronautics, Brazil now possesses three of the four known techniques for enriching uranium. Besides the laser process and centrifugation, Nuclear Industries of Brazil (INB, the former Nuclebrás) is building a commercial demonstration plant for enriching uranium by the jet nozzle process, which it received from the Germans as part of the nuclear agreement.

Technological success aside, it remains for the Ministry of Aeronautics to explain what its purpose was in developing a new uranium enrichment process. The INB's reason is clear enough: it wants to supply our nuclear power plants, since it is the organization responsible for providing the fuel. For its part, the Navy is carrying out—also with German cooperation—a project for the domestic construction of a nuclear-powered submarine in the medium term and claims that it needs to develop a reliable technology for enriching uranium to 20 percent in order to operate the compact nuclear reactors used in submarines and ships.

Since the Ministry of Aeronautics cannot claim that it is thinking of building nuclear-powered aircraft, there is room for speculation concerning the possible military purpose of its research. Its project, developed in São José dos Campos, is the one with the greatest military potential because it makes it possible to produce large quantities of highly-enriched uranium, and that would diminish 80 percent of the obstacles to be overcome by anyone thinking of producing atomic weapons.

Process Alters Nature of Uranium

Although uranium in its natural state can be used as a fuel in some types of nuclear reactors, the most widely used technology in the world today requires that it be "enriched." In other words, of uranium's two main isotopes (atoms of the same chemical element but with a

difference in mass), the percentage of uranium-235, which in nature accounts for only 0.71 percent of the total mass, must be increased to approximately 3 percent in the case of fuel produced for use in conventional nuclear power plants (the Angra plant, for example), to about 20 percent for use in compact reactors like those used in submarines and ships, and to over 90 percent for the production of nuclear weapons—what is popularly called the atomic bomb.

Theoretically, this separation cannot be achieved by chemical processes, since despite the difference in mass, the chemical behavior of fissile uranium-235 and of nonfissile uranium-238, which accounts for the other 99.3 percent of the total mass, is identical. The separation methods used are therefore physical. In all known processes, the uranium is initially converted to a gas called uranium hexafluoride, the manufacturing process for which has also been mastered by Brazil on the basis of research conducted by the Institute for Nuclear and Energy Research (IPEN) in São Paulo.

Since it is volatile, the gas is centrifuged when centrifugation is the enrichment process being used, pumped through fine membranes in the gaseous diffusion process used in the United States, France, and the Soviet Union, directed through curved nozzles in the jet nozzle process, or bombarded with a laser beam in the laser process. The gas molecules of U-238, being slightly heavier, tend to concentrate on the periphery, as the result of the centrifugal force applied in the three first-named processes and are then collected and enriched in subsequent stages, the process being repeated thousands of times until the desired level of enrichment is achieved. The laser process is scientifically possible because the beam is calibrated so that its resonance is identical to the frequency of one of the uranium molecules making up the gas, since they differ from each other.

Prepilot Laser Enrichment Project Funds Sought

6,700 PIS-48 Brasília (CORREIO BRASILEIRO)
in Portuguese / Nov 91 p. 10

[Text] The Aeronautics Ministry is negotiating with the Presidency of the Republic for the release of \$14.7 million to install a prepilot plant for the enrichment of uranium using a laser beam, a technology recently developed by the Institute of Advanced Studies, of the Aeronautical Technology Center in São José dos Campos, São Paulo. The plant, which is essential to test and improve the enrichment technology, will have the capacity to vaporize 4 kg of metallic uranium per hour.

According to the proposal of the Aeronautics Ministry, the prepilot plant should be in operation at the beginning of 1993 and will cost the Treasury another \$2 million a year for operating expenses. After this will come the pilot plant, which will assess the technology from the industrial standpoint, and which is planned to go into operation at the beginning of 1995.

The process of uranium enrichment by the selective ionization of the atomic vapor by laser irradiation is considered the most suitable method for the next century, because it requires less electrical energy and would make it possible to produce a larger quantity of enriched uranium. Only three other countries are studying this process for uranium enrichment: Japan, France, and the United States. Apparently only Brazil has reached the point of being able to announce the discovery.

Initiated in 1974, the research is going through a difficult phase for lack of funding. This year only \$15 million was allocated to the Institute of Advanced Studies to pursue the research, but in 1990 the allocation was a pittance \$500,000, only enough to take care of bureaucratic matters. Over the last 17 years, the so-called parallel program for nuclear power has received \$411 million, most of which was applied to research on the fuel cycle and enrichment by the ultracentrifuge method.

Brazil's Principal Nuclear Goals

1. Mastery of the nuclear fuel cycle, on a pilot scale moving to the phase of industrial demonstration.
2. Mastery of the technology for construction of PWR (pressurized water) reactors, including construction and operation of a Brazilian research reactor at the IPEN (Institute for Nuclear and Energy Research).
3. Mastery of the technology to obtain special materials for the development of superconductors, permanent magnets, special types of glass, neutron detectors, high-yield chemical filters, and semiconductors for refined electronics.
4. Development of the first high-powered linear electron accelerator, the only one in South America, with industrial applications, and one that would permit the practical training of nuclear physicist and engineers at the doctoral level. The first stage will be initiated by the end of this year.
5. Development of special metal alloys with applications in electronics, precision mechanics, and the chemical industry.
6. Development of rare-earth ceramics that are highly resistant to temperature changes and with specific physical characteristics for metallurgical, electronic, and electrical applications.
7. Development of vacuum pumps for gases and liquids, magnetic bearings with zero friction, magnetic flow pumps for metals, and high-tech components.
8. Uranium enrichment by the laser method, at the laboratory level.

Angra II Nuclear Plant Privatization Sought

PT06/2154291 Sao Paulo: FOLHA DE SAO PAULO in Portuguese 4 Dec 91 Section 1 p. 1

[Report by Francisco Sathon of the Rio de Janeiro bureau]

[Text] The government wants to privatize the Angra II nuclear plant (in Angra dos Reis, 155 km from Rio de Janeiro) so that its construction can be concluded. Jose Luiz Santana de Carvalho, president of the National Nuclear Energy Commission (CNEN), stated that \$800 million of the \$1.5 billion required to complete the project is being sought from the private sector.

The possibility of making the private sector the majority shareholder in the plant is not excluded within the negotiations that the government wants to conclude "within three or four months."

Carvalho said that a group of Brazilian bankers and construction people have shown "considerable interest" in participating in the project.

Carvalho said that there is interest in including foreign partners, on an equal basis with national enterprises, in the termination of the plant.

Carvalho said that Angra II is already 80 percent completed and \$1.5 billion have been invested in the plant. The government plan foresees that the new owner of the plant would contract Furnas Electric Power Plants Inc., which currently operates Angra I, to operate the nuclear plant. Furnas could even be a minor shareholder in the plant.

The project foresees the construction of Angra I, II, and III. Currently only Angra I has been concluded and it is operating at half of its nominal 600 kw capacity. The plant is currently closed for a change of fuel.

Regarding the sale of Angra III's equipment to Iran, Carvalho says that the idea "is interesting from a commercial viewpoint, but not from a political one." He says that the viability of the negotiations would first require Iran to become more integrated with the international nuclear community. Considering that the commercial exploitation of the plants are not the CNEN's concern, Carvalho said that he prefers not to negotiate with Iran.

Nuclear Submarine Project Baset by Delays

PT03/2232991 Sao Paulo: FOLHA DE SAO PAULO in Portuguese 9 Dec 91 Section 1 p. 20

[Report by Brasilia Bureau Chief Gilberto Thomazoni]

[Text] An official document that has fallen into FOLHA DE SAO PAULO's hands reads that from 1987 to August 1991 the nuclear submarine project being developed by the Navy already has absorbed R\$ 1.5 billion.

cruseros (\$440.6 million). But, according to Navy Minister Admiral Mario Cesar Flores, at least 1.187 trillion cruzeiros are still needed to make the submarine operational.

The deadline has been changed so many times that the Navy Ministry does not know when the project will be completed. The minister says that from an "optimistic" viewpoint, the submarine will be submerged in Brazilian waters in the year 2005, in other words, within 14 years. FOLHA DE SAO PAULO questioned the technicians involved in the project and they said that if the current allotments pace continues, the year 2010 would be more realistic.

According to official data, 93.1 billion cruzeiros were spent in 1990. And according to the Navy Ministry, 113.3 billion will be spent this year. The expenditure for the nuclear submarine does not figure as such in the federal budget sent to Congress; it is found under the heading of "refurbishment."

The idea of building a nuclear submarine emerged in 1978, when the military, disenchanted with the Brazilian-German Agreement, decided to include it in the parallel nuclear program. The initial forecast was that the first submarine would be operational in 1995. Afterward, the deadline was set for the year 2000, but, according to Minister Flores, the year "could be" 2005. Technicians consulted by FOLHA DE SAO PAULO are betting on the year 2010.

The project is being developed in two states: Sao Paulo and Rio de Janeiro. The center involved in the enriching of uranium is at Aramar, Ipero District (125 km west of Sao Paulo).

According to Flores' "optimistic" forecast, the prototype will be ready for dry dock in the year 2000. In other words, the submarine's reactor will be functioning in an experimental form in dry dock. Within a five-year period the submarine will be built and appropriately loaded with torpedoes.

A conventional model, which is much cheaper than the nuclear model, today costs \$200 million. In an interview with FOLHA DE SAO PAULO, Flores lamented the project's delay: "It is Brazil's industrial sector that comes out the loser with this delay."

According to Flores, the submarine is the Navy's goal and this justifies its inclusion in the nuclear program because the nuclear energy will become part of the Brazilian economy, thus representing "technological progress." For Flores, the project has nothing to do with the atomic bomb. "There is a lot of ignorance in this respect," he said. He stated that the submarine will run with nuclear energy, something that will be fully accepted by the International Atomic Energy Agency (IAEA).

But Itamaraty suspects that part of the United States' resistance in transferring more advanced technology is

due to the North American apprehension regarding Brazil's nuclear ambitions. This apprehension led Flores to send a secret letter to Foreign Minister Francisco Ruark telling him that the whole project can be inspected by the IAEA.

SAE Preparing Nuclear Policy Bill

PT011220091 Sao Paulo FOLHA DE SAO PAULO
in Portuguese / Dec 91 Section 1 p. 7

[Report by Sonia Momen and Sylvio Costa]

[Text] Over the next few days the Strategic Affairs Secretariat (SAE) will send to Congress a bill outlining the Collor government's nuclear policy. Pressed by the military, the SAE dropped a bill creating a committee to review operating conditions in the nuclear area, with powers similar to those vested in the National Commission for Nuclear Energy.

Under pressure by the U.S. Government, the SAE, along with the Foreign Ministry and the Science and Technology Secretariat, also is preparing a bill restricting exports, technological transfers, and rendering of services of sensitive material abroad.

CHILE

Minister Rojas Confirms Origin of Arms Shipment

Shipped From Chile

PT111710091 Santiago Radio Chilena Network
in Spanish /091 GMT 11 Dec 91

[Text] Defense Minister Patricio Rojas has confirmed that the weapons found for Yugoslavia which were seized in Hungary, were shipped from Chile.

Rojas said that the subject is being handled in a very responsible manner in order to determine who is responsible for this case.

[Begin recording] [Rojas] That is all. The weapons were shipped from Chile, and it is understood that the shipment probably is the one found in Hungary.

[Unidentified speaker] [Question indicated]

[Rojas] [Words indistinct] the circumstances under which this took place, who is involved, whether are civilians, soldiers, or national defense institutions, the results are being investigated. [End recording]

Minister Rojas refused to comment on whether the weapons were shipped with the armsman, authorizing. When asked about this, he answered that he believes the defense minister has all the necessary information at hand.

The weapons shipped from Chile and seized in Hungary were bound for Zagreb, capital of Croatia, according to

sources which confirmed that the plane that transported them belonged to a U.S. company.

The Boeing aircraft that landed in Budapest on 1 December belongs to an airline based in Florida, United States.

Sources close to the Yugoslav authorities said that the necessary conditions to close a legal deal had been achieved, but an unidentified problem forced the cargo aircraft to land in Budapest.

It was then established that the documents mentioning Nigeria as the final destination were forged. The documents had to be forged because Hungary had joined the arms embargo against Yugoslavia, thus making it impossible to ship 11 tons of weapons and explosives of various origins to Zagreb.

More Details on Arms Shipment

[P. 1.] Noticias Santiago: Televisión Nacional de Chile. Network in Spanish. 21th GMT 11 Dec 91.

[Excerpt:] It has been confirmed that the arms shipment confiscated in Hungary left Chile with documents issued by the Military Hospital (as heard). The defense minister said that investigations are being carried out to find those responsible for the shipment, whether civilian or military.

Many reporters gathered this morning in front of the Arms Industries Forum building after learning through several reports that the arms shipment confiscated in Hungary had left from this place. It was announced yesterday that Forum today would exhibit its projects and that the Army commander would attend the exhibition. However, the Army press officer today said the media that General Pinochet will not attend the exhibition and that journalists are not allowed to attend.

However, the version that the Army is responsible for the international deal is increasingly becoming stronger. This action may even cause a sanction by the UN Security Council, which ordered an embargo on the sale of weapons to Yugoslavia. *[passage omitted]*

It has been established that a foreign company bought the arms from Forum to send them originally to Sri Lanka and that the 11 ton shipment consisting of 1.6M (Eight Million) Weapons, rockets and missiles was loaded on 30 November on a charter plane from the U.S. airline Florida West. However, the airplane changed route and after trying to land in Zagreb, stopped at

Crima, it had to land at the airport in Budapest, Hungary, where the shipment was confiscated.

According to reports from Budapest, the arms boxes and documents bear the seal of the Santiago Military Hospital, apparently with the purpose of camouflaging the arms to make them look like a humanitarian aid shipment. Does this mean that the Army knew the weapons' final destination? This is one of the points that must be clarified in the investigation carried out by the Defense Ministry. Another question is: How can such an arms shipment leave Chile from an main airport?

[Begin recording:] *[Captain identifies Air Force Chief of Staff General Ramon Vega Rodas:]* Well, without doubt, considering that the cargo was not thus declared in its documents, it means they were forged documents, a serious fact.

[Unidentified reporter:] General, does the Air Force control the shipment in this case?

[Vega:] No, the Air Force is not supposed to make this kind of control. This is a Customs problem. *[end recording]*

Several reports are circulating in Budapest but no official communication has been issued yet on this subject. However, it is thought that the investigation already has concluded and that the results soon will be given to the Chilean Embassy in Hungary.

Meanwhile, Army Deputy Commander Lieutenant Colonel Jorge Lucas confirmed that an internal investigation is being carried out in his force to determine the origin of the weapons confiscated in Hungary.

[Begin recording:] *[Unidentified reporter:]* It is said that the weapons confiscated in Hungary came from Forum. Do you know anything about this?

[Lucas:] No, I cannot give you a concrete answer to your question. I do have some reports, but no reliable information. This is, of course, being investigated. The first thing that must be done once all the information is collected is to reform the Army communication. This and probably happen sometime afterwards is the first after tomorrow. A complete investigation must be carried out.

[Reporter:] Has a legal process been opened?

[Lucas:] No, not at all. This is only an investigation as a correspondence and as issued by the defense minister. *[end recording]*

EGYPT

Officials Call for Arab Nuclear Progress, Secrecy

U.S.ATZ/128 current SPH/AN in Arabic 26 Oct 91 p. 12

(Amman) "Arab Nuclear Capabilities: the Lure of Blockade and Coercion"

[Levi] President Hafez Mubarak has announced the support of the peaceful nuclear program in Egypt. As an immediate consequence of this, a climate arose warning against the danger of this move. These statements are similar to Western statements, which are a mix of condemnation and warning against Arabs possessing the nuclear weapon, because of the outbreak of war against Iraq, the attempt to search and destroy its nuclear capabilities, and impose a Western blockade through the UN against Iraq and other developing countries "with the exception of Israel," so that none of these nations will have, or try to have, this weapon. The new item is that the West does not want an Arab nuclear capability, not just in the military, strategic, and political sense, but also in the peaceful developmental and economic sense. Through control over international lending and financial agencies, Western conditions have been slipped in to freeze and stagnate any Arab nuclear project, as well as to blockade it.

Experts, technicians, and military specialists confirm that the Western blockade could be breached, and they deliver the conditions for that. We also have the technical and technological components and raw materials required to manufacture the Arab capabilities. We do not lack the financing, so much as we lack the political will and the climate of strategic vision.

Experts emphasize that Arab political reality is not capable—now—of establishing an Arab nuclear weapon as a strategic element in the conflict with the Zionist entity. This does not deny the need, or rather, the duty to construct peaceful nuclear power plants whose role would be for development and to share in the atomic industry pursuant to development in the future.

In regard to this issue, what do experts in that field say?

Crisis of Decision

Present circumstances are not propitious to achieve an Arab nuclear weapon. There are many obstacles in the path of this goal. This statement was made in an military and strategic expert staff Major General Tal al-Shaykhani, who went on to say: "I think that it would not be impossible to produce and manufacture this weapon, if we were convinced of the need for it, through debate and through a consultation of the interests of creating a military balance with Israel. Regarding the elements that this industry would require, one will find that Egypt and Iraq have made great strides on the scientific level, to the extent that Iraq was very close to, or in the verge of, achieving this goal. Therefore, I believe that the most important thing that must be done is to preserve the

expertise and knowledge that Arab entities have achieved in nuclear technology, and to complete the installations and materials. All of this will contribute to producing the Arab nuclear weapon. Unfortunately, as we know, Iraq is under nuclear supervision. Instead of Arab states contributing to its destruction, Arab agencies must obtain Iraq's expertise and industries. We must now think about constructing new nuclear facilities, as a pledge of political decision and will, which must serve to build nuclear power plants and reactors."

Major Gen. Mawallan added: "The order that underlines the construction must be Arab. It is possible to ask foreign experts for assistance, but caution is necessary, because the international environment is not propitious."

With regard to importing the components of a nuclear weapon, Major Gen. Mawallan feels that it is preferable to deal with individuals rather than nations, despite the current advantages, because political circumstances contribute to their economic problems. Moreover, the nuclear material required for the weapon is one of the products of the reaction required for energy and, consequently, it would be possible to obtain it easily from individuals in a peaceful form. The nuclear material can be found in the international market, but the country where it is obtained is restricted, which makes it a sensitive, complex process that cannot attract attention, because it could be a violation of the international embargo imposed on that material. Accordingly, this should not be left to one state, but rather, should be dealt with as a regional responsibility to produce, manufacture, and protect this goal, so that our nuclear project does not become a target for a foreign attack."

Arab Responsibility

In discussing Arab technological resources that might be available, Dr. Hamed Nadi al-J, professor of political science at the College of Economics and Political Science at Cairo University, stated: "Resources are available, but the question is, should the burden of manufacturing an Arab nuclear bomb be put on one country?" I think that the responsibility should be a joint one, politically and strategically, among the Arab nations. Nevertheless, this would be no easy matter, inasmuch as the Arab states differ among themselves on how to resolve the Palestinian issue, to a peaceful settlement, or by a strategy of confrontation, or by the different strategies. The question raised is how to establish an Arab regional agreement on manufacturing the nuclear bomb. This would—realistically—be difficult to achieve in the midst of an Arab climate charged with disputes and tension. After what happened in Iraq, the Arab states will think twice before manufacturing and producing nuclear weapons. It would be erroneous to believe that we lack resources or technical expertise. The weapon is not an atom bomb emergency alone. On the contrary, the technical expertise is available and is not a monopoly of the West. It is well-known that India has a high level of expertise in nuclear bomb manufacturing and, consequently, from

On the political aspect, one could find an outlet to compensation for any deficiency in technical expertise. On the other hand, it is said that international monitoring is increasing. America is pursuing harder measures and is putting pressure on all parties, so that no nuclear cooperation takes place, especially with regard to the Arabs. I think that this supervision is illegal, inasmuch as it prevents the Arabs from producing and manufacturing nuclear weapons. The Iraqi nuclear program was developed with the assistance of French technical expertise. This cooperation continued until Israel destroyed the Iraqi reactor in 1981. Nevertheless, Iraq continued and was successful in developing its nuclear program. Even if the Gulf war had not occurred, the West must think would have dismantled and blockaded Iraq. I don't think that there is any party in the world that has the power and structure to control this capability and this nuclear weapon. Gaps exist and are found in the international order, whose features have not yet crystallized, despite American influence."

Clarity of Vision

Staff Brigadier General Murad al-Chamisy agrees with the previous opinion. "In order for us to build a nuclear weapon, a scientific and technological base must be available, along with the technical material required to build this weapon and to manufacture the fissionable material to cause the nuclear explosion. In addition, there must be scientific cadres in the nuclear field to use these nuclear weapons. This required material can be found in the Arab states, particularly the Egyptians, Iraqis, and Jordanians."

Even resources not available to the Arabs could be obtained in many ways. As for the main impediment, everyone agrees that it lies in making the decision and then being able to safeguard this decision from outside influences. It has to be kept secret so that the project is not aborted in its early stages."

Brig. Gen. Murad al-Chamisy added that, if the Arab nations were able to achieve their nuclear industry on a specific level that would make it difficult to attack, particularly after production, "no power would be able to attack our project. At this point, I would underline bringing together all Arab political will, commitment with clarity of vision in the long term. This is required in the near future. Even nations that have succeeded in manufacturing and producing atomic energy possessed clarity of vision, no matter what sacrifices it cost. Scientists can be obtained, even from countries like Pakistan and India. Despite the international situation's best toward Israel and its armaments, and despite the multiplicity of surveillance methods, we could avoid detection by coordinating our work with secrecy. As an example, in Arab states we could implement a long-range plan that would develop peacefully in the future."

Regarding the matter of the Arabs possessing a nuclear weapon as a strategic deterrent to the Zionist entity, al-Chamisy stated: "Talking about Arab regional

security—now—has become a waste of time. It is left to Israel's possession of this weapon, because it has no less than 200 nuclear bombs with which to threaten the Arabs. Only requires that Arab regional security rely on balance in the nuclear field. With non-nuclear weapons the Arabs have unbalanced weapons. This tips the balance of the conflict in favor of the Zionist entity."

The Nuclear Weapon, Feasibility

Despite the military importance of the nuclear weapon to the Arabs, political decisions in the Arab region have avoided it, especially after the Gulf war. The greatest danger of that is the chance that has surrounded its nuclear program for peaceful purposes.

Concerning the views of technicians and specialists on the possibility of using nuclear energy in the Arab world, to be used for peaceful and regional purposes, Dr. Haniyeh Abd-al-Mahdian, former head of the Egyptian Atomic Energy Commission (EAEC), stresses that "from the expertise and consistent aspects, nuclear fuel—upon which any nuclear program must rely—is the basis of its entire process to produce energy. This fuel is represented by uranium, which the EAEC was and still is making efforts to discover and extract."

"About the establishment of a section for geology and atomic raw materials in the EAEC, and independent specialization and organizations in the energy field were established in 1977. We have been searching in Egypt's deserts in the hope of finding atomic raw materials. We have covered large areas, or rather, we have covered 50 percent of the total surface of Egypt, by means of aerial radiation surveys. This percentage was chosen because it contained the best possibilities, especially in the eastern desert areas, according to previous studies that have been conducted. Through hard work over 50 years, we succeeded in attaining technical skills, cadres, and high expertise specialization in the field of fissionable materials. We have specialization in exploration, extraction, and analysis. We succeeded in importing everything required to launch a program of atomic energy exploration and, consequently, we now have geologists who have obtained a high scientific level and who can continue in this course."

"As a consequence, we have concluded that uranium exists in our greater formations in the eastern desert, since these formations carry deposits of considerable importance. Accordingly, we have begun to ascertain precisely the possibility of this in the area of Bahariya, northwest of al-Bahariya, al-Mahdian and al-⁽¹⁾ (Irbid), halfway between Qena and Safageh and finally in the area of Ikingi Maryut, south of al-Khamsa, where the existence of quantities of uranium has been proven by sightings and verification."

Other Methods

Haniyeh Abd-al-Mahdian went on to say: "In principle, we estimate that there are 1-4,000 tons of uranium in an initial form, according to the International Atomic

Energy Agency (IAEA) system, which is comparable with other regions of the world. Moreover, detailed studies are now being conducted in regard to digging and mining operations in order to determine the quality precisely. The results will not be zero, and it will not be very far from 14,000 tons. With regard to other methods, we have a project to extract uranium from phosphate. The feasibility of extracting uranium from this material has been proven. There is a project under study, and final approval is expected.

This energy is now the basis for development of the world. Perhaps France's scientific progress and industrial revolution resulted from its reliance on nuclear energy for 75 percent of its total energy needs. IAEA reports also indicate that 25 percent of the world depends on atomic energy. I would like to caution the Arabians that oil will be depleted sooner—viz. 25, 30 years at most, no matter how much exports differ. Reliance on nuclear energy now will help to avoid dangers and dependence on the outside world in the future. On the contrary, the more we procrastinate in starting our nuclear program, the more the cost and difficulties increase in achieving that program in the long run. Perhaps it doesn't seem to be too difficult to achieve. We have the expertise and the human, technical, and financial resources. We must also follow the example of the countries of the rest of the world, all of which are heading toward the construction of nuclear power plants.

Cooperation Plans

Dr. Moustafa Maghaddi, director of the Studies Administration of the Nuclear Power Plant Agency, warns that the absence of nuclear power plants means stagnation in cooperation plans that have been so abundant in the past of introducing nuclear technology into Egypt and the Arab nations since 1960. This confirms the necessity of the kind of energy in the hands of cooperation nations, and makes us conscious of danger subordination to the West.

Dr. Moustafa Maghaddi believes that there is a global tendency toward reliance on using nuclear power, both on the level of advanced and developing nations, because everyone has begun to understand the benefits of these plants in obtaining cheaper electricity in a more reliable way. There is increased confidence in nuclear reactors.

Dr. Maghaddi rejects expansion of thermal plants that will, in the use of coal or gas, because they are harmful to the environment, since these plants produce carbon dioxide gas and toxic, acid-rain substances that damage the entire planet. All of these problems do not occur in nuclear plants. We can avoid other kinds of dangers from power stations and contribute to our advancement without excessive reliance on the West. It should be emphasized that we have successful examples of digging well advanced technology; we have the capability to produce our nuclear reactors in the future, with our professionals and staff at mastering the science and performance of these plants.

Programs Under Implementation

Dr. Hisho Hany, deputy chief of the Egyptian Military Science Group Commission, stated: "Since 1984, we have conducted detailed studies of the local possibilities for manufacturing nuclear power plants in greater numbers. The program is to manufacture nuclear reactors, and we have the ability to manufacture its small components locally. These reactors do not require large investments. As for the nuclear fuel required by the reactors, it is the natural form of uranium and requires no complex technology. It can be extracted, refined, and manufactured directly. In this regard, an agreement has been reached with Canada to manufacture nuclear reactor components in Egypt. It has become clear that Egypt can manufacture the reactor and will not fall under the influence of world monopolies. We are now waiting for the political decision. The program is in the implementation stage. Despite enormous international recognition, the cost. Let me stress here that the cost of the nuclear reactor is only \$1.1 billion, of which Egypt will contribute \$450 million." Dr. Hisho Hany added that the industry that deals in nuclear technology undergoes a cultural change in all fields. Moreover, Egypt benefited in the High Tech battle, and it opened huge companies and projects. Egypt should plunge into the fields of nuclear energy, so that it will possess high technology and be a specific source of investment in the Arab nations in achieving this technology. I call on the Gulf states, in particular, to aid Egypt materially so that it can support such plans now and in the past.

Dr. Hany pointed out that there is no danger from the use of nuclear plants. Safety precautions currently being taken put them in the forefront of energy options in terms of safety and environmental protection. The proof of that is the fact that no nuclear accidents have occurred in developing countries that have built nuclear reactors, such as India, Pakistan, and Taiwan. Dr. Hany repeats the West's statement that the Third World is incapable of utilizing this type of energy. His rejection is proven correct by the fact that there are 200 Egyptian workers operating and working in nuclear reactors in Canada. Egypt is the first place for them.

Mess on Nuclear Weapons

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Interview with Foreign Minister, Abu Mansur, after his visit to Saudi Arabia, 21-22 of 11 June 1990 at Jeddah.

[Interview (phone interview) 21-22 of 11 June 1990, after the Foreign Minister's attempt to talk about the report of Egyptian press regarding Saudi preparations and the danger surrounding them as a result of the Arab countries' purchase of nuclear reactors, and the concern about nuclear weapons, raised regarding Saudi purchase of a nuclear reactor from the PRC.]

Mansur: The talk has often been repeated. The real danger lies in the construction of nuclear power. There is no

communities would be involved in the construction and subsequent operation of these installations. One-third of which are nuclear sites. Israel must take part in this process as there will be no exemption to the rule. Israel is like any other country of the region and, consequently, what applies to the Arab countries must apply to it. (page 1000000)

INDIA

Indian President Nuclear Plant Proposal Criticized

U.S. Presswire, Newsmagazine 281 C, 281 C (281000) 11
in English 1 Nov 80 p 1

(New) Newsmagazine, 4 November.—The announcement of the Chief Minister, Mr. N. Sanjay Reddy, that the Government of Andhra Pradesh will build a nuclear power plant is the ideal plan for setting up of the proposed nuclear power plant and that the government was considering the proposal came as a blow to the people in the district.

The proposal which is not a new one, had been there or had given up by the earlier N.P. Singh and Chaudhary Government, following agreement by people from all walks of life against the setting up of the plant here.

The Chief Minister's statement came as the positive attitude of the Central and State Governments towards setting up of the plant, while environmental and economic are emphasizing doubts over its effects.

Nevertheless, there are many who welcome the plant as it would generate jobs and solve unemployment as a common reason. They even argue that it is a step towards progress. The others however see it only as a step of false progress which would cost deaths in the form of spreading dangerous diseases such as cancer. Many experts which have warned the dangers of nuclear power plants near densely populated areas are warning to set up such projects. One chairman.

new danger involving is the nuclear plant and the other atmosphere would be affected by radiation that is harmful to the adjoining population and may cause a large toll of lives. In fact, even engineers in the plant fear the risk of harmful radiation effects.

There is a possibility of letting out the coolant from the reactor containing nuclear fuel into the Narmada river. In either of the cases, the polluted water might affect the fish and other living organisms causing diseases like cancer among those who consume them.

If the reactor is set up in Nagpur, people of the surrounding districts like Gondia, Khandwa, Raichur, Nagpur, Amravati, Wardha and Sangli districts

would be affected by it. It would be better for the government to set it up in a uninhabited area, a few miles out.

Editorial Analysis Pakistan Nuclear Issue

U.S. Presswire, Newsmagazine 281 C, 281 C (281000) 11
in English 18 Nov 80 p 1

Editorial: Pakistan's Nuclear Ambitions

(New) The suggestion by the U.S. of the necessity and to Pakistan has not at all deterred the latter from going ahead with its nuclear weapons programme. Pakistan's nuclear ambition and lack of the nuclear power. Dr. A. Q. Khan has reportedly proclaimed himself as the first of his country is now a nuclear power. Addressing the Lahore Chapter of Commerce and Industry the other day, Dr. Khan said that Pakistan was now one of the few free countries in the world which possessed nuclear technology and know-how. He actually went to confirm a Carnegie Endowment report that Pakistan was now probably closer to an nuclear bomb than any other country in the world. Interestingly, the report was made public in September last year—about a month before the Soviet administration suspended economic and military aid to Pakistan because the President had refused to certify to Congress that Pakistan did not possess nuclear weapons. A few months after the suspension, the Chairman of the Pakistan Atomic Energy Commission, Mr. Khuram Khan, declared that his country would not slow down its nuclear programme and that it would not compromise on it at any cost. The latter matter was reflected in Dr. Khan's recent statement. If Pakistan has now become a nuclear power, posing a threat to peace of the Indian sub-continent, it is because of the American uncertainty about the future unqualified nuclear security of India and its right to the nuclear power. There is a strong demand in India for carrying the nuclear programme. There is much fear in the area that India's campaign for nuclear non-proliferation should not make a difference of the emerging nuclear threat in its neighbourhood. Pakistani leaders have over the years been saying that their country will join the Nuclear Non-Proliferation Treaty (NPT) if India does so. But they cannot be unaware of the fact that India has in contact with another nuclear power—China.

Sometimes ago, the Chinese Government reportedly declared a 10-year nuclear moratorium on Indian targets. And with China there is an unqualified moratorium on the nuclear programme of a country that is not a member of the NPT. Pakistan has reached an advanced stage in the manufacture of nuclear weapons. Eight years after the beginning of Pakistan's nuclear programme, there has been substantial progress. It is estimated a device to have designed in the last few years, which is sufficient to destroy a city. After Mrs. Benazir Bhutto became Prime Minister, there has been a significant change in the nuclear programme of the country. It

track as though the elected government has no say in nuclear participation in nuclear weapons plan.

Pakistan's official position on its nuclear program does not appear with the statements made by its nuclear scientists. But reports emanating from international sources make one thing clear: that Pakistan is in possession of nuclear weapons. This position really should not be shared by the West administration, which, according to one report is now willing to accommodate Pakistan on the nuclear issue. The U.S. President has to decide (in secret) whether to should issue the due certification under the Proliferation Treaty that Pakistan's nuclear program is a peaceful one. Such a certification would trigger nuclear arms race in the sub-continent. To grant that possibility, Washington would be well-advised to extend the suspension of military aid to Pakistan.

Research Reactor for Isotope Production Designed

Atomic Energy Dept. of India Radio Network
in English (MOT 007) 4 Dec 87

[Text] India has designed a general purpose research reactor which could be used to develop isotopes for isotope production and other applications of nuclear technology for peaceful purposes.

The prime minister Mr. Rajiv Gandhi gave the information in a written reply to the Rajya Sabha members. These reactors when supplied will be directly used under IAEA (International Atomic Energy Agency) safeguards.

IRAN

Secretary F.R. Statement on Nuclear Arms Deal

NS (1) 207440; Foreign Affairs in Foreign 1 Dec 87

Reorganized statement: "The Capabilities of Iran"

[Text] The German Government has attempted to in some extent to present in a more distant manner to world opinion that Iran is eager to manufacture nuclear weapons.

The chief of the German intelligence bureau (Kernell Pensions) said at a press conference yesterday: "If Iran continues its current military activity it will attain the capability of making its own nuclear reactor by the year 1990."

Again from the international agreements, the German Government has left the Israeli nuclear power plant unaffected, which indicates the hidden motives and intentions behind the action. If the West government thinks that by such threats it can control its movements regarding Iran and by its observational attitude and past interventions and by creating psychological

distraction for the Islamic Republic of Iran it can turn it toward submitting to the new world order, it is strongly mistaken.

All the above statements are essentially incompatible and are being made when circumstances in the press (members of the chief of the German intelligence bureau, the German Foreign Minister "Hans-Dietrich Genscher" previously bestows a human rights award to the Iranian foreign minister is grateful for Iran's humanitarian efforts and its exerting of its influence for the release of the hostages in Lebanon).

We expect the German intention is completely reverse their relations with Iran and to diminish and attend all hidden intentions in its diplomacy with Iran.

The German Government can only achieve a wholesome relationship with Iran when it follows a "diplomacy of truth" in its political conduct toward Iran, otherwise, the future prospect of ties with Iran will remain veiled in a mist of ambiguity.

Paper Views German Stance on Nuclear Capability

MOT 222040; Paper 009 in English 1401 007
1 Dec 87

[Text] Tehran: On 1 AFPs—An Iranian daily close to hardline on Thursday described as "unacceptable" a German statement that Iran was seeking to build nuclear weapons.

The Persian-language newspaper KHAMENEH said the German Government position was "perpetual" and asked German officials "to reverse their relations with Iran and correct the contradiction in their diplomacy towards Iran."

"Germany can only have normal relations with Iran if it pursues sincere diplomacy," KHAMENEH stressed.

German intelligence chief General Pensions said in remarks published Wednesday that Iran would be able to build a nuclear bomb by the year 2000 if it keeps up its present military activities.

He said the daily KHAMENEH said while there was no evidence Tehran was building nuclear weapons, it was sufficiently capable to begin manufacturing uranium or plutonium needed for such weapons.

Details on Bomb Production Activities

USP Press 1 1 of Dec 11 20 107 00 00 00 00
in English (MOT 007) 11 Dec 87 10 00 00 00

[Article by Ron Ben-Yehuda]

[Text] In February 1987, 65 members, then president of Iran, persuaded members of Iran's Atomic Energy Commission at the Center for Nuclear Research in Tehran

"We need atomic energy now," he said, "handfuls of scientists and engineers. We need unflinching officers from all of you, brethren."

At the same time, the advantage in the Iran-Iraq war was swinging to Iraq. "Al-Basra" ground-to-ground missiles were already scoring death and destruction in Tehran, while Saddam Hussein was slaughtering thousands of Revolutionary Guards with poison gas. Though dangerous and dangerous like many of the marshlands around Khomenei at that time, President Baathist tried to be careful and restrained. But the speech grew progressively more impassioned until he concluded with these blunt words: "Our last line of defense is the shadow of an atomic threat. The more we can do to meet this danger is to reach our hands that we can protect ourselves. Therefore, every day you take here today behind our homeland and the revolution. You must work hard and quickly."

These comments, quoted by the Iranian media from a senior Iranian figure, were the first official expression revealing that Iraq is working on the bomb. Aside from some rumors and intelligence officials, however, very few have paid them attention. The International Atomic Energy Association (IAEA) also has ignored them.

A year after Baathist's speech, when Iranian scientists, with Pakistani assistance, were already engaged in step-by-step efforts to enrich uranium, Hafez Bakr, chairman of the IAEA, stated that to the end of his days he maintained his belief that Iraq's nuclear program was designed for peaceful purposes.

That was not surprising. Bakr's association had ended Iraq on the eve of the Gulf War and, upon their return, officially announced that they had found nothing indicating a program for building atomic weapons. Like Iraq, Iran has signed the nuclear nonproliferation treaty and like Iraq, is trading the IAEA inspectors over to the new

United States. What is interesting about the Iranian nuclear weapons program is the intention to do Iraq later. The two programs were launched at the same time in the spring of 1979, and both were interrupted and later resumed. In both, vast sums of petrodollars were expended for secret acquisition of nuclear technology from all available sources in the international market.

The difference is in the rate of progress. When the Gulf War broke out, Iraq was on its eighth month away from the bomb. Iran has better scientists and no one is interfering with it at the moment, even though it has increased its efforts to acquire nuclear weapons much later than Iraq did.

According to various reports, the Iranian nuclear weapons program today is at the infrastructure building stage. That the Iraq program reached about eight years ago. Opposition figures in Iraq uniformly insist that Iraq already has in its possession enough high grade enriched uranium for one primitive atomic bomb. These

reports have not been verified and, so far as is known, Iraq at this time lacks the infrastructure and necessary components to build a bomb.

"If Iran continues its efforts at the current pace, it could obtain an atomic bomb by the end of the decade. If the Chinese, the Pakistanis, and the Argentines continue to assist them, Iran will have a bomb of the type dropped on Hiroshima and Nagasaki, perhaps even a more advanced model, within seven or eight years," says Daniel Ledwith, a senior researcher and senior adviser at the John Center for Strategic Studies at Tel Aviv University.

Other experts share this opinion. Ledwith, who has been following atomic developments in Iran for some time, is convinced that the efforts Iran is now making to acquire its materials with the West are linked in no small degree to its drive to arm itself with nuclear weapons.

The Iranians are determined to avoid the mistakes made by Saddam Hussein, as is other countries, in its own nuclear weapons program. They do not want IAEA inspectors sniffing around in their country and will spend vast resources and equipment in Korean, Italian, and large as the Iraqis are doing in the Soviet, Cuban, Pak, and West German regions. For that reason, Baghdad is being careful not to provide fuel and is even working hard to win release of the western hostages held in Lebanon.

The current president of Iran, Ali Khamenei, Baathist's Khamenei, is undoubtedly the same behind Iran's nuclear weapons program. Dr. Khamenei, the chief of Iran's Islamic Energy Commission, a one of his deputies and former ambassador to Iran, had the Soviet Union for a Persian atomic bomb was laid in the 1970s to the very man whom Khamenei and his colleagues built and began—the Shah, King Pahlavi.

Before Khamenei took power, the Shah did more than a little in the arms. In 1973 he signed a contract with a subsidiary of the German Siemens corporation, according to the contract terms, the subsidiary, "Kraftwerk Union," was to build two atomic power reactors, each supplying 1,300 megawatts of electricity at Bushehr on the coast of the Persian Gulf. The cost of the project was 5.5 billion German marks.

About a year after signing of the agreement, construction work at the two reactor sites was in full swing. Work proceeded without interruption for three years until the Iraq-Iran war began in 1979. When Germany, doubtful in its policy that prohibited involvement in weapons of mass destruction, threatened "Kraftwerk Union" to cease its operations at Bushehr. At that time, construction work at one of the reactors was 85 percent complete, while half of the other reactor had been built, almost its infrastructure, including the basic equipment needed for operation.

Immediately after signing the contract with the Germans, Iran ordered an additional reactor from France for producing 1,300 megawatts of electricity. The French

company, "Framatom," was to build the reactor near the city of Ahwaz in western Iran, not far from the border with Iraq.

At the same time, officials of the Shah signed a contract with a French company called "Comatol" to supply atomic fuel for the reactors under construction. They also bought 20 percent of the shares of the firm, which was to supply Iran enriched low grade uranium.

This ambitious program required thousands of scientists, engineers, and technicians. Because the Shah wanted them to be Iranian, he sent hundreds of his ministers for advanced study in the Soviet universities and atomic research institutes in Britain and the United States.

In 1975, the Shah wanted to erect 20 nuclear reactors in Iran at a cost of \$30 billion.

But even that did not satisfy the Shah. The Iranian "King of Kings" and like Saddam Hussein, dreamed of seizing a position of leadership in the region and wanted to convert Iran into a regional power. In addition, he feared the rising military and scientific power of Iraq from the west end of Pakistan to the east. These two countries were then starting down the nuclear road, the Shah did not want to be left behind.

Accordingly, along with the uranium, nearly instantaneous acquisition of the new power reactors designed for generating electricity, the Shah formed a small group of Iranian scientists to begin construction of an indigenous infrastructure for developing nuclear weapons. A substantial part of this activity was conducted at a small nuclear research reactor built by an American company in Tehran. The Americans also supplied enriched high grade uranium for use in the reactor fuel.

When the Shah fell and Khomeini seized power, the Americans stopped their delivery of uranium. Nevertheless, some kilograms of that enriched high grade uranium remained in Iran. By some estimates, this quantity is enough for one atomic bomb.

The project was secret and took a few years of development. When the Shah fell, however, and Khomeini took power, it was disclosed to the world that nuclear scientists who fled to the west. Some of them even knew enough to report at a later time that even during the Shah's reign, drawing on their close contacts with his own nuclear scientists in the American scientific community, they had managed to get hold of blueprints for producing a 20-kilowatt power bomb equivalent in the city designed in Mississippi but of a more advanced type.

In 1978, the Shah's personal began to deteriorate and the mullahs prepared to take the reins of power. Khomeini, who was then still a ruler of France, had no choice—to put it mildly—for the Shah's grandiose development projects. "The atom is the devil's handwork," he told ministers, and made clear that, on his return to Iran, he would put an end to the accelerated nuclear

development. Some of his own circle who knew of the Shah's bomb program, however, thought otherwise.

In May 1978, at the peak of the turmoil following the Shah's fall, the Ayatollah Akbar Behabadi called on the Iranian nuclear scientist Dr. Fereidoun Fardtharaghi, who was in charge of a small group that had been working to lay the foundation for the bomb. Dr. Fardtharaghi had been directly subordinate to the head of state at the Shah's government and had prepared for him a plan for developing nuclear weapons. A copy of this proposal had somehow come into Behabadi's possession.

When the two met, Dr. Fardtharaghi later recalled, Behabadi told him: "Your task is to build an atomic bomb for the Islamic Republican Party. Our constitution is in danger and, if we are to protect it, we must have the bomb."

"But," said the scientist, "that will be a very expensive project."

"No problem," Behabadi replied. "The cost is transfer and it is our duty to begin the program without delay."

No hint was born of this meeting. Some months after Khomeini assumed power, the Ayatollah Behabadi was murdered under unclear circumstances. With the fall of the Shah, Dr. Fardtharaghi fled from Iran to the west along with hundreds of other Iranian scientists and students who decided not to return to their country.

The largest bomb project, like the rest of the elements of the Shah's atomic program, was captured by order of Khomeini. France and Germany did not place economic pressure on Iran to continue the projects. The United States pressed both governments not to cooperate with the fundamentalist Muslims who had seized power, it lost and taken the American diplomatic hostage.

Six years passed before the Ayatollah again began to show interest in a nuclear program. The first sign of this occurred in 1 November 1981 in the international edition of the Iranian newspaper "Jomhouri." published that day, appeared an announcement calling on Iranian nuclear scientists abroad to return to Iran to participate in a scientific conference on nuclear power. The conference was scheduled to take place in October or March 1982.

It is possible that the Iraqi also read the notice and it may be that they had other information that caused them to be concerned. That same year they began armed attacks on the "Carmage" reactors in Shuster. The planes attacked and bombed the city four or five times. In 1980, they succeeded in the in draining a majority from that the go this destroyed a large portion of the reactors which, as it seemed, had been meant for the next eight years.

In the same attack, a German expert on the city was killed. German technicians working on the construction of the first bomb had "Northwest German" had not recently stopped construction work on the site. The

German corporation had entered a partnership with an Argentine Government firm for atomic development operating under the name "Atsulf" and to that firm continued its transportation work and shipment of supplies to the war.

That was the first sign of an atomic connection between Iran and Argentina. Argentine newspapers and scientific institutions in the United States later reported that, at about the same time, Argentina assumed the burden of restarting operations at the atomic research reactor in Tehran, which it had adapted to run on a fuel of low grade enriched uranium.

The critical component of an atomic bomb is the fission material. The explosive device of the bomb is relatively easy to develop and produce. Even if the apparatus is not the most advanced of its type, it will go the job done. The fission material, however, is difficult to manufacture in the quantity necessary, particularly when the atomic bombs are "primitive," which can be produced only with a relatively large quantity of plutonium-239 or alternatively, high grade enriched uranium.

Plutonium is created in nuclear reactors from natural uranium bombarded with neutrons. Enriched uranium is produced, by contrast, by entirely different methods. The known techniques are mechanical separation by gas centrifuges, an electromagnetic process that uses a device called a calutron, and a method based on use of laser beams.

Whatever the atomic enrichment began with, military" approach was. Tehran has the great importance of reports published in Argentine scientific journals that Argentina has delivered 27 kilograms of low grade enriched uranium for the Iranian research reactor in Tehran. Production of a bomb requires about 25 kilograms of enriched uranium with a purity of 91 percent.

Iran's bombardment of the reactor in Bushehr revealed the involvement of another partner in the Iranian atom program. The report stated the government of Iran ordered to arrest its foreign was some other than Dr. Akbar Khat, Pakistan's nuclear war operation of nuclear matters. Dr. Akbar Khat who speaks Persian and long ago that his country has an atomic bomb, is regarded as the man who provided Pakistan to carry out into the realization of nuclear weapon programs.

On completing the advanced studies of research institutions in Europe in the 1970s, he reported, in whole or in part, plans that were carried out in Pakistan to build a new and sophisticated system of centrifuges for enriching uranium. When the United States broke up and began to impose sanctions on Pakistan in an attempt to stop the program, it was already too late. In a research village in Lahore, Pakistan, Khat and his colleagues already had enough Soviet material to build a fourth. His appearance in Iran was an additional indication of the direction in which the evolution had set. Two years of the origin of atomic.

That same year, 1987, was apparently the turning point of the Iranian project for producing nuclear weapons. The Iran-Iraq war had reached an impasse. The Iranians ceased advancing and suffered one attack after another at the hands of the Iraqis who made extensive use of chemical weapons. Tehran began to understand that it was just a long war, Iran defeat and its associated brutality searched for something that would equalize Iraq's chemical weapons.

In Khatibzadeh's imagination, Khatibzadeh listed his opinion that to "the bomb's quest" and its bomb conditions required a variety of approval from the highest authority. It was then that Khatibzadeh delivered his lecture address before the members of the Atomic Energy Commission and the efforts to develop nuclear weapons received a shot in the arm.

But that could not succeed on its own. It needed facilities, materials and technology, everything that Iran did not have or struggled with the lack of the bomb. There was no point in having in the West which guided by the United States, toward Iran as a partial case. The Soviets, too, always cautious of nuclear matters, were not prepared to consider serious collaboration with the Iranians. Thus, their weapons into the members of the Third World. Three of them, China, Pakistan and Argentina, were willing to sell their nuclear know-how out of a desperate need for foreign currency.

The British press reports that Iran signed a secret agreement in 1987 with Pakistan and Argentine cooperation to carry out work. There was Iranian uranium left for advanced study in Pakistan where the Iranian technicians from Pakistan and Argentine made the Iranian nuclear facilities, including enrichment of uranium. According to information that has not been confirmed by the Pakistan the following year built an experimental centrifuge installation for enriching uranium in Karachi, a city northwest of Tehran.

Now in 1987, China began selling Iran in the amount of a contract for nuclear research near Beijing. While denying that it is previously mentioned to Iran, however, that had made the foreign currency, to finance the project in full. These matters indicated anti-United States of the region.

Iran's nuclear weapons program entered its great push forward with the end of the Iran-Iraq war in the summer of 1988. Conditions that previously had been prevailing in nuclear trade with Iran was the increased oil production and markets, demand on energy at home. The oil partners, China, Pakistan and Argentina, pushed their efforts with the realization that partners would need to be in the way.

In 1989 and then in 1990, in the shadow of the Iran-Iraq war, between the United States and Iran, Iran's atom program reached full speed. Iran made an international agreement with the European countries that was in Kar-

that the reaction of Russia and Germany that it found the project or put an administrative halt to monetary compensation.

Meanwhile, Iran brought a similar claim against the French firms that had signed contracts with the Shah. The French Government, appearing under the Iranian demand for delivery of the enriched uranium referred to the Shah, stated itself in an especially delicate situation. The French knew very well the purpose to which that material was likely to be put and refused, but Iran cathechically considered them that it is the owner of 21 percent of the company's shares.

The litigation with the Germans and the French recently ended in a financial compromise. With the Iranians are concerned less in money than in plutonium and enriched uranium. Like the Iraqis, they are prepared to advance on a broad technological front as they can eventually find what they want.

The collapse of the Soviet empire also presented a golden opportunity for Kazakhstan to turn to Russia when it came from a source that hitherto has been closed to them. Iran was not slow to realize the latent potential in the thousands of unemployed Soviet nuclear scientists offering their services to the West. Iran has now signed a protocol for joint cooperation with the Soviet Union by which it was promised two Soviet nuclear reactors each to produce 640 megawatts of electricity.

Western intelligence experts are worried. The Soviet reactors could serve as the conduit through which Iran will receive from Russia the information, equipment, and components needed for its nuclear weapons program.

In the meantime, however, Iran has not neglected its old friends. The direction of its nuclear weapons program apparently stayed true. It then attempted to build on Iranian previous large nuclear reactor capable of producing available quantities of plutonium, considerable international attention would continue. The same resources applied to reactors whose operation requires large quantities of enriched uranium.

It appears, therefore, that Iran decided to follow a more sophisticated course, creation of a large number of small nuclear research reactors that each would supply 10 to 15 megawatts of electricity. Even a 10-megawatt reactor operating on natural uranium and heavy water can produce two and one half to three kilograms of plutonium a year. Then, a few or more such, each a reactor can provide enough plutonium for one bomb. If a number of such reactors are in operation or Iran, the other would be produce significant quantities of plutonium will be not.

And that is not all. By making some fairly simple changes in the structure of a small reactor, it is relatively easy to Soviet production more doubling or tripling to output. These adjustments can be made after the reactor is

completed by the IAEA, and when output increases, so does the quantity of plutonium produced.

Iran therefore turned to a number of nuclear states of the Third World with requests to buy research reactors. According to information recently brought to light in the West, China, India, and possibly Argentina have been willing to comply.

Last year, China became the principal assembly in Iran's nuclear weapons program. Its scientists are now mounting a campaign of the various components of the infrastructure necessary for that purpose. For example, China recently agreed it will build a small calibration for use in enriching uranium. This calibration, of course, has critical parts, such as in the research reactor China agreed to supply Iran. But the Iraqi experience teaches that the reactor that takes delivery of the uranium, it will have little trouble copying it and building many more, possibly even larger calibrations.

The locations at which the nuclear research reactors will be built are not yet known, but it is believed that the Chinese research reactor the supply at least 15 kilowatts of electricity will be located close to Isfahan. The Indian reactor, if it is built, will be near Karwan.

Meanwhile, two Iranian uranium mines are operating at full capacity. One is near the city of Urmia while the second is in the southern part of the country. Pakistan and North Korea experts are supervising the construction and primary processing of the natural uranium derived from the ore.

North Korea is also credited it Iran a parallel drive to augment the efforts to enrichment being ramped ground-to-ground reactors with which is follow the bomb. The Iranians are now attempting to increase the Chinese use to sell them the necessary information and equipment to develop long range ground-to-ground missiles capable of carrying a nuclear warhead thousands of kilometers.

When Iran does acquire the facilities, equipment, or produce the bomb and mount it on a warhead or ground-to-ground missiles, Iran will be placed in the greatest state of real danger. Iran, after all, does not have the fact that the worst destruction facing it, Iran is the probability to become the holder of the Islamic world that will balance Israel's nuclear capability.

Iran stands to spend some \$30 billion in the next five years for foreign funds. Some estimates put these expenditures at \$7 to \$10 billion each year.

During the Madrid conference leaders of the regional states expressing the political position gathered in Tehran to that effect. Iran's Vice President Khatami stated that "I target commitment to construct a nuclear armed. Moreover, Iran will together to produce an atomic bomb."

irrespective of attempts by the United Nations to prevent the proliferation of nuclear weapons. There must be equality between the nuclear capabilities of Israel and the Muslims.¹

There is another aspect of the link to Israel on this subject. Syria has been Israel's friend and ally for some time. It is not inconceivable that when Israel has nuclear missile capabilities it will come to an agreement with Syria to transfer to Damascus its nuclear umbrella and the long sought "weapons parity" with Israel.

ISRAEL

Bureq on Nuclear, Chemical Building by Syria, Iraq

Tel Aviv (JTA/1991) Jerusalem (Jer Times) and Haifa (Haifa Times) 1991-12-27 A (Sec. 4)

[Tel Aviv] Chief of Staff Eliahu Bureq said that only Saddam Hussein's removal from power would do away with the threat of Iraq manufacturing a nuclear bomb. He was speaking at the Commercial Club this afternoon at Tel Aviv. Lieutenant General Bureq stressed that it is important for Israel that the international community should not focus on its efforts to disarm Iraq of its nuclear weapons. He even suggested that the probe was being conducted at an overly slow pace and noted that the Iraqis have been taking advantage of this fact to conceal equipment and acquire additional know-how which it would be impossible to take away from them.

The chief of staff dwelt on Syria's military buildup, noting that Damascus has been developing forests of Scud² missiles and purchasing launchers from North Korea. Syria's chemical capabilities are larger than that of Iraq's and it has also started showing interest in the nuclear option. The Syrians have acquired MICV-20's and have been receiving hundreds of T-72 tanks from Czech republics, Bureq said.

[An earlier report in JAH GNET on the chief of staff's remark adds: "General Bureq believes that on the eve of the opening of talks in Washington, commitment of the commission might be to stop up minor attacks, including the use of firearms, to sabotage the negotiations. The Government has taken numerous precautions to stem such a development."

Chief of Staff Bureq on Iraq Nuclear Threat

Tel Aviv (JTA/1991) Jerusalem (Jer Times) and Haifa (Haifa Times) 1991-12-27 A (Sec. 4)

[Tel Aviv] Lieutenant General Eliahu Bureq, the chief of staff, to the Commercial and Industrial Club at Tel Aviv on 1 December—continued broadcast of program.

[Tel Aviv] Two points, first, if we stand firm in guarding our defense systems, if we know how to fight, to maintain what is essential, what is important, and what is desirable. If we are prepared to die for what is vital and

to struggle as long as necessary for what is important and to negotiate on what is desirable for us, especially if it is vital for the other side, if we know how to do all these things, then although there are risks in entering these negotiations they also contain significant chances.

The second point, I recalled earlier that one of the three aims driving the Americans and the international community is disarming Iraq of its nonconventional capability. From our viewpoint, the international community's consistency and determination in that effort is an important test case for three reasons. First, because of the very risk. The Iraqis still have in our area several hundred Scud missiles, thousands of chemical warheads for artillery, tank-air missiles, etc. They were closer two years ago than yesterday to the West over matters of installing a nuclear device. They were then likely in the advanced stages of planning a nuclear device, not only for the option of immediate deployment and it is too straightforward that had the Gulf war not taken place within 18 months or perhaps two years they would have had a nuclear bomb.

PAKISTAN

Article Urges 'Blow the Bomb'

AL-BANAT (Karachi) JAH, 1991-12-27 A (Sec. 4)

[Karachi] by Farhat Ishtiyaz Khan. "Now or Never."

[Karachi] (passage omitted) The United States is now focusing its attention on nuclear programs in Pakistan, Iran and Nigeria. It wants to ensure the nuclear countries in this one-third of the world population have down to a point of the chance to take advantage of their resources. Then, at the matter of peace, it is trying to become the undisputed center and leader of the world. We refer to this dream as the new world order. (passage omitted)

We are passing through the moments very after the 1945 war. We should take advantage of this period and blow a nuclear bomb. If we lose this opportunity, then we will never be able to attain nuclear independence. American cooperation is tightening its hold on us gradually. Mr. Gorbachev said the time when we are being to slow our nuclear program. In the past, we had stopped our nuclear program because of the demands of U.S. and to this date U.S. and Soviet Union have been stopped, and we are not even getting aid for a pipeline.

Even if we stopped our program for the sake of U.S. and the United States will continue to impose new restrictions on us. For example, I was asked to reduce the number of our armed forces, not to make progress in defense technology, not to make weapons, not to make tanks, not to cooperate with China, and so forth. This way, at nuclear arms of thousands will be made, not in U.S. a small, we will not be independent any more, and we will not be free at all. (passage omitted)

Weapons form in chambers and inadequate economic and tax survey guaranteed a nation independence and self-sufficiency. This slogan of self-sufficiency that we have promulgated should have been raised a long time ago. There will be many problems because of this delay. If the correct path is taken, then if a nation will make sacrifices happily (Our nation should consult with its real friends—China, Iran, Turkey and others)—and thus the boom. We should analyze the situation that would be caused by such a blast and also make defense preparations. During General Beg's tenure, the military paid special attention to defense and military industries. That is admirable. We should continue at full capacity now, since it is important for our self-sufficiency in the defense area. (language omitted)

Government, China Sign Technological Accord

RAJINDJI (ATN) Islamabad Radio: Pakistan Veterans in Urdu (40) GMT 5 Dec 91

[Text] Pakistan and China signed in Islamabad under their fifth agreement on bilateral cooperation in the economic and technological fields. Under the agreement the two sides will conduct joint research and exchange study visits, information, documents, and data in various scientific and technological fields. Elahi Raza Soomro, the federal minister for science and technology, and Chen Zifeng, the vice minister of China's State Science and Technology Commission, signed the documents on behalf of their respective countries.

Advances in Nuclear Field Proclaimed

ATN PAKISTAN Lahore: NAB 6/10 GMT in Urdu 5 Dec 91 p 4

[Reference] Summary of Pakistan's Program and Science

[Text] Dr. Ishaq Ahmed, Chairman of the Pakistan Atomic Energy Commission (PAEC), said that Pakistan scientists have succeeded in transforming the 30 megawatt (MW) research reactor situated at Nilore into a 10-MW reactor. The United States gave us the Nilore reactor as a gift under the "atoms for peace" program in 1965. This reactor was put into use in 1966 and until 1980 generated uranium for fuel. The reactor had a life span of 25 years. Pakistan was using it to prepare isotopes that were used for medical, agricultural, and other peaceful purposes. The United States stopped supplying fuel for this reactor in the 1970s. At that time, Pakistan scientists started to change the design of the reactor in order to attain self-sufficiency in this area. They have finally succeeded. Now the reactor con-

20-percent enriched uranium, and the responsibility for providing this fuel will be with Pakistan's trusted friend, China. The change in this design has increased the life of this reactor to 25 years, and the isotopes made here will still be used for peaceful purposes. Pakistani scientists and engineers are to be congratulated for changing the design of the Nilore reactor. This is a small beginning, and it shows the ability of Pakistan's talented engineers. Pakistan should be proud of its scientists. Progress in the nuclear area is a valid need of Pakistan, and the modern world does not only defend its borders using nuclear capabilities, but also uses such capabilities in the areas of health, agriculture and engineering. Pakistan has succeeded in developing new seeds for agriculture as a result of this technology. The record-breaking cotton harvest is also a result of our nuclear program.

Unfortunately, Pakistan's nuclear program is a sore spot for the Hindu and Jewish lobbies, and Pakistan is being pressured to the whole world as being offshoot with making the "Islamic bomb." Meanwhile no objections are being made about India's nuclear program. India founded an atomic bomb agency in 1974 and dozens of research facilities in India are busy preparing enriched uranium. According to a CIA report, this uranium is enough to make 25 atomic bombs. According to other sources, India can make 40 to 100 atomic bombs. India's ambitions are not hidden from anyone. The Indian Navy also has nuclear submarines. Keeping in view India's dangerous and warlike ambitions, Pakistan has the right to make plans for its defense. It is not possible for it to protect itself from India with its traditional military weapons. In order to ensure peace in this region and to stop India's "war fever," Pakistan has to take the route of nuclear deterrence. The United States and other anti-Islamic nations are targeting Pakistan in order to keep the Islamic world weak. Pakistan has made it clear that if India's nuclear program is kept under control, then Pakistan will accept every NPT (nonproliferation treaty) condition. Pakistan has introduced resolutions in the United Nations every year to keep the Indian Ocean free of nuclear weapons. In spite of these efforts, all nations are gun for Pakistan. Pakistani Ambassador Asfiah Hanif, stationed in the United States, has said that Pakistan cannot suspend its nuclear program absolutely. It has every right to defend itself from India's dangerous ambitions, which is not possible without a nuclear deterrent. Pakistan also needs nuclear technology for its health, agriculture, industrial and engineering areas. Pakistan cannot compromise this program to please the Hindu and Jewish lobbies. If the United States, China, the Soviet Union, Great Britain, France, Israel, and India have the right to have nuclear technology, so too does Pakistan. Pakistan cannot step away from this region.

Disintegration of Nuclear Power Viewed

LD1112264491 Moscow Central Television First Program Network in Russian 1900 GMT 11 Dec 91

[Commentary by A. Gerasimov, introduced by correspondent Irina Mishina, from the "TV Inform" newscast]

[Text] [Mishina] For many years the downfall of the Soviet Union was an American dream. However, Robert Gates, the new director of the CIA, said on 10 December that this dream is turning into a nightmare. The biggest cause for concern for the Western strategists is the control of the 30,000 units of the Soviet nuclear arsenal.

[Gerasimov] The text of the agreement on the creation of the commonwealth of independent Slav republics claims that the member-states of the commonwealth will preserve and maintain a common military-strategic space under a unified command including unified control over nuclear weapons. It does not clarify specifically by whom and how the nuclear button can be pressed.

This is the first time in human history that the disintegration of a nuclear power has occurred, and quite understandably the world's inhabitants are concerned over the question of guarantees of their strategic safety. Until 3 December the whole world was aware that only Mikhail Gorbachev could order the launching of the ICBMs located in Russia, Kazakhstan, Belarus, and the Ukraine.

Then on 9 December at a news conference on the results of the Belovezhskaya Pushcha meeting, Ukrainian President Leonid Kravchuk stated that another system had been created for the launching of missiles and that three buttons, each under the control of the leaders of the Slav republics, needed to be pressed simultaneously. There was no mention of the fourth Kazakh button.

It is for military strategists and politicians to judge whether the security of the peoples of the former Soviet Union is increasing and whether world nuclear confrontation is decreasing, but those who have to eliminate the missiles are becoming dismayed. Refuting what the Ukrainian president had said, Gen. [General] Maksimov, the guardian of the missile potential, stated that both prior to and following Belovezhskaya Pushcha only the USSR president is in charge of the nuclear console. This was confirmed by Russian President Boris Yeltsin in a telephone conversation with U.S. President George Bush.

Let us add that alongside the button with Gorbachev are the Defense Council and Defense Ministry of the Soviet Union, a state that to all intents and purposes no longer exists. In short it is a fine muddle in the best traditions of the USSR.

The out-of-favor Chief of the General Staff Lohov, who was recently sacked by the country's president, has brought further refinement to the situation. Today he expressed perplexity over his retirement and at the same

time stressed that his credo was the impossibility of the constantly changing political situation having an influence on the Armed Forces.

At present events are developing in such an unexpected way that it is virtually impossible to predict the future, and certainly it is essential to have precise guarantees from all leaders involved with nuclear weapons so that we do not feel like hostages of the button.

[Mishina] And so, up to the present moment Mikhail Gorbachev is the commander-in-chief of the Soviet nuclear arsenal. For the time being the politicians are waiting and assessing the situation. Meanwhile it has been learned that the United States, the EC and NATO have sent their representatives to the Ukraine to clarify the nuclear weapons situation on the spot.

Maksimov Asserts Central Claim to Missiles

PM1012264191 Moscow IZVESTIYA in Russian 11 Dec 91 Union Edition p. 7

[Interview with Arms General Yu. Maksimov, commander in chief of Strategic Deterrence Forces by V. Litovkin, place and date not given. "Arms General Yu. Maksimov: Our Nuclear Weapons Are Under USSR Presidential Control"—first paragraph is introduction]

[Text] IZVESTIYA has already announced (No. 275) that a new branch of the Armed Forces—the Strategic Deterrence Forces—has been set up in our country by USSR presidential decree. Arms General Yu. Maksimov has been appointed its commander in chief. Our military correspondent talks to him.

[Litovkin] Yuriy Pavlovich, following the agreements reached in the Belovezhskaya Forest, who is the proprietor of the nuclear weapons, you or the leaders of the three independent republics?

[Maksimov] Both before and after the Belovezhskaya Forest, to use your expression, the USSR president and the State Council are their proprietors. And we are responsible for the high degree of the Strategic Deterrence Forces combat readiness. As for tactical nuclear weapons, they too will remain under USSR presidential control although they are under the jurisdiction of the Ground Forces, aviation, the fleet, and the Air Defense Forces.

[Litovkin] Why are the Strategic Deterrence Forces necessary? What will they constitute?

[Maksimov] Their aim is to ensure military-strategic stability and strategic parity. The new branch of the Armed Forces has been formed based on the Strategic Rocket Forces and ballistic missile early-warning, space surveillance and missile-space defense systems, as well as the space hardware chief's directorate. Forces and systems from the Air Defense Forces will also be included.

Air and sea strategic nuclear forces will also be under these operational jurisdiction. But the final component and organizational-staff structure of the Strategic Deterrence Forces are still to be clarified.

[Litovkin] What will the creation of the Strategic Deterrence Forces bring?

[Makushev] Concentrating all strategic nuclear forces in one set of hands will help unite their systems of command and control and combat use, formulate unified technical policy and a system of staffing and cadre training, preclude unnecessary duplication, and thus save a considerable amount of money.

[Litovkin] Another aim to clarify. When listing the components of the Strategic Deterrence Forces, you said nothing about air, air, nuclear weapons storage bases, plants where missiles are assembled and testing ranges.

[Makushev] Without doubt, everything that is part of the Strategic Missile Forces, as well as the other deterrent systems that I have cited, will be part of the Strategic Deterrence Forces.

[Litovkin] How does the creation of a new branch of the Armed Forces fit in with the Treaty on Strategic Offensive Arms Reduction and Limitation and G. Bush's and M. Gorbachev's disarmament initiatives? What is your opinion of them from the military viewpoint?

[Makushev] I think that the formation of our troops is fully in line with the Strategic Offensive Arms Treaty. I have already said that the intention is to cut appropriations, parallel structures that duplicate one another and, thus, arms—all this, I repeat, comes within the treaty that has been signed and is designed to fit in with the stages for its implementation.

As for a military-strategic assessment of the two presidents' initiatives, I can say one thing about them. The drastic reduction in nuclear confrontation is in itself a positive thing. We are, for instance, taking off combat alert 503 intercontinental ballistic missiles. That represents 1,094 warheads. We are resolving a whole series of other issues. We are withdrawing from our force composition the RS-10, RS-12, and RS-16 ICBMs currently deployed. The West classifies them as the SS-11, SS-13, and SS-17.

Our bombers will not be on combat alert duty with nuclear weapons on board. U.S. strategic bombers are also being taken off combat alert and "Minutemen" missiles will no longer be on combat alert. I think that all this will strengthen military-strategic stability in the world.

[Litovkin] Some experts reckon that the U.S. side's individual initiatives are putting us in a disadvantageous position. They intend to reduce their oldest missiles, while saying nothing about sea-launched nuclear forces and trying at the same time to deprive us of very

powerful modern weapons like mobile intercontinental missiles and enhance their mobility capabilities. How do you view these suggestions?

[Makushev] Our talks with the Americans are always made difficult because the structures of our strategic nuclear forces are different. It is very hard for both sides to find a balance of interests. What is more, the various proposals and initiatives do not yet represent a final solution, they have given us not the edge. But they can be as a basis for negotiations. Because negotiations always represent a quest for mutually acceptable compromises.

The Strategic Offensive Arms Treaty does not apply to our mobile "off-road" components. And the suggestion that Soviet mobile national components will operate in permanent housing areas in our territory. We think that, in view of the general strategic stability in the world and the situation today, we can take that step without damaging the country's security.

Naturally, this is not a definitive decision. If the international situation improves, we will agree to new constraints.

[Litovkin] Will there require corresponding steps from the United States?

[Makushev] I think that both sides have already taken corresponding steps, apart from the fact that our decision to cut warheads from 6,000 to 5,000 goes further than the U.S. proposals. But that is their question. What is to be done in their case?

[Litovkin] But the Strategic Offensive Arms Treaty has still not been ratified either by us or by the United States.

[Makushev] It is now in the process of being prepared for ratification by the country's Supreme Soviet and the Congress.

[Litovkin] But won't the collapse of the USSR and the formation in its place of four nuclear powers in particular such a powerful independent state as the Ukraine in whose territory the Strategic Rocket Forces are now and prevent its ratification?

[Makushev] I don't think that there should be any particular difficulties. The warhead reduction is strategic arms for which the treaty makes provision. It is in the interests of both the United States and the USSR and the whole world.

In any case, the fears that four nuclear powers will emerge are unfounded. There is only one nuclear power—the Soviet Union as a whole or the state which this will be its rightful successor. And as you know—this was discussed at the Fifth Congress of People's Deputies (as confirmed at a session of the State Council)—the nuclear nuclear forces will be centralized and under unified control. That is also the case today.

The republics, autonomous and the referendum on Leningrad independence, along with the agreement concluded near Bonn, do not destroy but preserve the Soviet Union. Khrushchev has frequently said that they do not lead to strategic weapons. Transforming these weapons to an republic is politically, economically, and legally—much less technically—impossible.

A breach of the Nuclear Nonproliferation Treaty may have serious international consequences, and they serve no purpose for us or the U.S.S.R. What a most serious of the strategic nuclear weapons is strictly controlled and it is virtually impossible to take "command" of them from a republic's territory.

The right of every republic to declare itself a nuclear-free zone and come to realize that status a positive status. We fully expect and understand that right. But republics, treaties and the procedures for bringing that demand into effect must be decided and coordinated.

Leningrad: Your strategic nuclear intentions are taken account in the context of their republic, including the Baltic states. There are your strategic developments?

Moscow: We have no particular concerns of questions that arise are settled in a reasonable way, on the basis of mutual understanding. But legal status for our installations must undoubtedly be formalized and mutually acceptable agreements must be concluded, as in the case in the civilized world. I hope that this will come in the near future.

Leningrad: The Moscow Treaty on nuclear arms under the Strategic Offensive Arms Treaty. Will you coordinate the dates and procedures for this work with the strategic status when your installations are located?

Moscow: The work should take place within seven years after the treaty is signed. It is one-third of the nuclear and atomic half of the work must be finished. The dates and procedures for the work have been arranged so as not to damage the security of other side. Needless to say, the republics will be informed about this.

Control of Nuclear Arms 'Not Clear' to West

By J. J. O'NEILL, Moscow 12/18/61, 11:14 a.m. (Moscow 12/18/61, 11:14 a.m.)

U.S. Arms Control Agency: "It is Not Clear to the United States of U.S. that the Soviet Union is the Nuclear Union."

[Text:] The results of the meeting of the leaders of Russia, the U.S.S.R., and Britain at the Belgrade Conference have probably been interpreted differently at the U.S. and Soviet personal centers. The Soviet working of the strategic policy committee of the Government agreed to the declaration of two groups to stand right on the Soviet nuclear program of the U.S.S.R. Government as a whole and of each of its constituent parts in the international arena.

The three leaders discussed "to preserve the good command of the common military weapons" and agreed to control over nuclear weapons" is designed to be an important measure of the "Belgrade Conference." But our Western partners are not satisfied with this wording. They still are not clear on the question—what, it has to be said, that is most important of the program committee—of just what, essentially, is the law of one of the largest nuclear powers in the planet.

Western approach have been about as a serious discussion of the participants' agreement to the problem of nuclear control. Although British leaders agreed that the nuclear weapons will remain in one part of hands, the U.S.S.R. president, in returning to him after the meeting, spoke of a second group with their nuclear weapons, which are earmarked for the three leaders and that it was of need to proceed with caution. It is quite clear that there is no disagreement here and the only serious concern over nuclear weapons is called control. But our colleagues must be told that it is not possible.

Meanwhile, the published documents do not bring the three leaders' agreement distribution of the nuclear—land control—of nuclear power, whether the agreement will be concluded through the United Nations or whether this distribution will come in a later stage and the leaders themselves adopt a different decision.

But even if we return this question, a third nuclear republic—Belarusian will be created in the vicinity of nuclear power, which, although used to the vicinity of the Soviet Union, is a considerable weight. There is a possibility to speak of international control of nuclear power as a general outside the treaty provisions. I am, nevertheless, doubtful. President Khrushchev, who personally, according to the instructions, a commitment is that of the Soviet Union, is not giving up the nuclear future.

The agreement on the U.S.S.R. Government's president, in meeting, does to strengthen nuclear weapons and can that the right "and suggest each other" does to achieve the status of a nuclear-free zone and a second state. There are still some other, undoubtedly, are addressed to the Soviet. But pressing reports believe—there without sufficient grounds—that it will not be that easy for the three "conferences" leaders to get out of their nuclear status. Such language of private conversations and because of a secret and in it is an agreement on independence to the Soviet Union, then, will have the form of a nuclear-free zone. (Text: 12/18/61, 11:14 a.m.) There is a significant progress, and the U.S.S.R. Government of philosophy. Using the agreement on the Soviet program, I maintain that "Russia will handle with its power the strategic, atomic, nuclear, and U.S.S.R. which possess nuclear weapons, is not clear. There are other republics—the Soviet Republics and Belarusian—also will not want to become international. During the last 10 months, in the nuclear arms office."

It is worth adding that it is a matter not only of the Kazakhstan but quite a long border with China.

I am sure that a certain part of all the suspicious professions and doubts being voiced in the West in connection with the decision of the Soviet nuclear arsenal is simply unfounded. "There are no grounds for believing that Russia or the Ukraine are industrial cases," Pierre Carboni d'Envaux, Secretaries and member of the French Academy, firmly declares. There really are no grounds, and the presumption of movement from east to west is not a reasonable one. But this does not free our leaders from the obligation to formulate the foreign policy goals and tasks of the new-born Commonwealth precisely and unequivocally, even if the West caught them unaware.

Of course, with the passage of time, unless there are innovations in the further course of the union of three states, their foreign policy declarations will become clear and orderly. While it would make sense to wait before drawing conclusions, only nuclear arms cannot wait. What is needed to keep them is check is clear political power which would close off the whole military chest from above. Such a challenge cannot be seen in the "Brezhnevite" documents.

Pravda: Soviet Nuclear Weapons Secret

(Pravda, 18 Dec. Moscow TASS in English 18 Dec. 1989, 11:45 a.m.)

(A. TASS Correspondent, Leningrad.)

True, Moscow December 17 TASS—Voprosy Pravdy, Director of Soviet Central Intelligence, stressed in a lecture for foreign correspondents in Moscow today that the extent of interest over the Soviet nuclear arsenal is great and grows as it spreads to the world. Pravda and the newspapers in place "absolutely guarantee" that nuclear weapons will not fall into the wrong hands. He emphasized the need to maintain a common military, economic, and central intelligence network among the republics of the former Soviet Union.

"We have to prevent at any time, I want to emphasize, at any time, a combined economic, social and military strategic attack on the interests of the former Soviet Union. A common military structure is especially important for us, for as nuclear weapons are concerned and especially important for the world," Pravda said.

When asked about nuclear weapons in Kazakhstan, Pravda replied, "I think that they should be, and I am sure that they will be under our command. When some people say that the presidents of various republics should all have access to the three buttons, from the point of view of the country's defense, this is nonsense. There is no cause for worry," but when pressed for details about who is actually controlling the new Soviet nuclear arsenal, Pravda was evasive. "Our experts are working with American experts to discuss the problem, and they all agreed that our interest is not less but more

serious than anyone else's," he said, adding, "The nuclear arsenal will remain in place, but who, eventually, is in charge of this, even if I knew it, I wouldn't tell you." As the Soviet Union unravels, no one can be certain that the old centers of control are still in place or, if they are, how long they will remain so. The hard administration is concerned that controls may break down completely amid the chaos gripping the country. Director of Central Intelligence Robert M. Gates said Tuesday (17 December), "we face a period of uncertainty as Russia and the other republics seek out possession of the weapons and establish new structures and procedures for controlling and operating them." Gates told the House Armed Services Committee, "The situation is dangerously unstable. The controls are in a free fall with no prospects for normalcy in sight." Gates also spoke before Congress on Wednesday, predicting serious social upheaval in the disintegrating Soviet Union, saying the country has not found such control since 1917 when Lenin and his Bolshevik Party first to become the Communist Party. Now now is power Robert Voronin, the U.S. ambassador in Moscow, warned that in the current climate, a democratic society could easily gain power, and make the future of national security, creating a situation which could escalate into civil war. CIA analysts warn that with no clear chain of command, a fragmented army suffering from shortages of food, fuel, and, in many cases, training, could pose a threat to the fragile new commonwealth. Speaking of the fledgling leaders of the republics, Gates said, "We are deeply concerned that the economic, economic and social challenges they confront them."

Although Pravda predicted that "serious social problems" could grip the Soviet Union by the beginning of next year due to the economic crisis, and particularly of reforms fail, it discounted the possibility of a second major crisis possibly to hard-line military forces, predicted by Soviet President Mikhail Gorbachev, and St. Petersburg Mayor Anatoly Sobchak. Tatler will not appear in the course of Moscow again as they did last August, he said.

Pravda also said the Commonwealth formed by Russia, Belarus, and Ukraine which has already been called by the parliament of those republics, has "positive implications" for the Soviet Union although it emphasized that a centralized intelligence network will continue to "serve the interests of security" in whatever form it emerges.

In an effort to stabilize the Soviet economic crisis, President Bush signed a law promoting trade relations with the Soviet or Ukraine.

Western Attitude to Nuclear Arms Examined

(Pravda, 17 Dec. Moscow TASS in English 17 Dec. 1989, 11:45 a.m.)

[A. Makarov travels under the general heading, "The Question That Remains: The West Believes the Idea of a Commonwealth Will Help Us Get Out of the Impasse"]

[Excerpt] (passage omitted) 'Whose Finger Is on the Nuclear Button?'

Statements by Soviet leaders in the past few days have not fully clarified this extremely important question. Russian Foreign Minister A. Kozyrev, whose words were interpreted to mean that although M. Gorbachev is exercising supreme control of the nuclear arsenal during the transitional period, he is nevertheless already sharing it with B. Yeltsin, was joined by Ukrainian President L. Krushchak who believes in the likelihood of the creation of these "nuclear unions." Russian First Vice Premier G. Yavlitskiy's answers at a news conference in Moscow as to who is commander in chief ("We will resolve this question in the next few days") were also disquieting.

We must not forget that the fate of almost 30,000 Soviet nuclear warheads is our neighbors' paramount worry. It is not out of the question, in their opinion, that national nuclear weapons will fall into the hands of internationally isolated leaders or will be secretly sold to "Third World" states which are at times cruel for their even greater unpredictability.

This will be the subject of discussion at a meeting between French President F. Mitterrand and G. Burdulin on 12 December. B. Yeltsin's crew, who has arrived in France on a one-day visit, will also meet National Assembly Chairman L. Fauron, Minister-Delegate for European Affairs E. Coudun, and the country's former President V. Faurand d'Arnaud. Local observers perceive this visit as Russia's desire to calm public opinion, showing that the nuclear button is now in reliable hands, our Paris correspondent Vasily Kovalenko reports.

In this connection, news agencies have been extensively quoting the words of P. Dreyevskiy, commander in chief of the Soviet Air Force, who said that "a madman on his own cannot take control of these weapons." Meanwhile, in Brussels, NATO leaders are reconfirming the idea of giving assistance to the East European countries in two spheres—the conversion of the military industry and the introduction of civilian control over the military.

Defense Minister on Nuclear Arm Control

LD141227191 Moscow Central Television First Program Network in Russian (RUS) GMT 11 Dec 91

[TV Interview] interview with Colonel General of the Air Force R.P. Mironov, Ukrainian defense minister, by correspondent L. Ichenko; date and place not given—recorded introductory paragraph read by program presenter Sergey Medvedev

[Excerpt] Mikhail Gorbachev had telephone conversations with Boris Yeltsin and Leonid Krushchak today. The latter took place after the Ukraine president had declared himself commander in chief of the republic's armed forces. (passage omitted)

Now, on the position of Ukraine. (passage omitted)

[Ichenko] Can we say now that President Leonid Krushchak will have his hand on the control panel of the strategic weapons of the Ukraine?

[Mironov] The armed strategic forces that will belong mostly to the countries of the Commonwealth, will be organized by a body which will be set up according to a decision of the presidents of these states, while the presidents themselves will be taking part in consultations and in conferences.

[Ichenko] Komsomol Petrovich, can all the countries and peoples be sure that a nuclear missile will never be launched from Ukrainian territory?

[Mironov] Absolutely.

Gorbachev Discussed Nuclear Arms

LD141201291 Moscow TASS International Service in Russian (RUS) GMT 14 Dec 91

[By TASS correspondent Igor Baranov]

[Text] Washington, 14 Dec (TASS)—The White House has announced that on 13 December President George Bush, at his own instance, held a telephone conversation with USSR President Mikhail Gorbachev. During their nearly 15-minute talk, they discussed the formation of the Commonwealth of Independent States, the Soviet economy, and how to ensure the safety of nuclear weapons. According to the White House announcement, President Gorbachev assured President Bush that Soviet nuclear weapons are under reliable control. The American leader stressed that the United States supports the democratic reforms taking place in the republic, and gave an assurance that the U.S. Administration is willing to provide humanitarian and technical aid.

China Will Not Help Develop DPRK Arms

ML121208491 Moscow Radio-Moscow in Russian (RUS) GMT 9 Dec 91

[Commentary by senior commentator (by Nickupov)]

[Text] Yoon Il-han, vice premier of the PRK State Council, at a meeting with Japanese Japanese Foreign minister declared that China will not cooperate with North Korea in developing nuclear weapons.

In this connection, senior commentator (by Nickupov) writes the following. The declaration of Yoon Il-han, vice premier of the PRK State Council, is another evidence showing China's privileged position on the issue concerning the development of nuclear weapons.

The international community has attached particular importance to the issue of nuclear nonproliferation. What is a problem is that the possibilities of nuclear weapons proliferation in Asia and the rest of the world increase considerably.

In addition, Vice Premier Tang Ansan declared that China plans to sign the Non-Nuclear Proliferation Treaty in the near future. It goes without saying that such a decision will be an important event. I am convinced that such a decision will have a positive influence on the Asian situation, which is laden with the acute issue of the uncontrolled proliferation of nuclear weapons. Previously, proceeding from such a standpoint, the North Korean issue was discussed in meetings between Tang Ansan, Chinese Vice premier, and the Japanese leaders.

I will briefly talk about the content of the issue. The DPRK signed the Non-Nuclear Proliferation Treaty in 1985. The treaty regulates that countries, which do not possess nuclear weapons and sign the treaty, in case that they have stockpiling facilities within their limits should open them down for an international inspection.

Regrettably, Pyongyang has not provided such a demand. This concerns many countries, including Japan. Therefore, the concern arises that the DPRK Government is promoting a research project to develop nuclear weapons of its own. It goes without saying that this situation will never contribute to easing the military and political tension in the Korean peninsula and to developing intercontinental relations in all districts of the Far East.

And then, what is the prospect for the issue? I expect that the issue which concerns the world community will be resolved in the near future. A week ago, the DPRK Foreign Ministry issued a statement saying that if the withdrawal of U.S. nuclear weapons from South Korea begins, it will agree to accept inspection of its nuclear facilities. There is a condition in the statement. That is, inspection of North Korea should be considered simultaneously with the inspection of South Korea.

Seoul announced that the withdrawal of U.S. nuclear weapons had already begun and that the withdrawal will be completed within a short time. After U.S. nuclear weapons are completely eliminated from South Korea, there will be no problem in connection with the interim nuclear inspection of North nuclear facilities. As you can see, we interpreted the statement issued by D.P.R. Defense Minister Yi Chong-uk at that occasion in this way.

Considering all facts, questions to it Pyongyang. The positive resolution of an inspection of nuclear facilities in South Korea will open up the possibility of realizing the proposal for solving the Korean peninsula issue, a nuclear-free zone which the DPRK put forward a few years ago. Needless to say, China can contribute to realize such a proposal.

Commentary on China, Nonproliferation Treaty

Editorial Board, Chinese Daily Mirror in Singapore
(1991-12-10) (p. 1)

According to information from the "Asian Affairs" programme of the Japanese government:

[Tang] PRC Vice Premier Tang Ansan said while meeting with Japanese Prime Minister Miyazawa in Tokyo: China wants to accede to the Nuclear Nonproliferation Treaty soon. A commentary by Japanese commentator Nakamura on this subject follows:

I would like to call your attention to the fact that the Nuclear Nonproliferation Treaty has been signed for 23 years and that 113 countries have so far acceded to the treaty. Three large nuclear powers—the Soviet Union, the United States, and Britain—guarantee the implementation of the nuclear nonproliferation treaty as stipulated in the treaty.

In 1964, four years after China possessed nuclear weapons, the Nuclear Nonproliferation Treaty was signed. However, China did not sign the treaty at that time, nor has it signed to this date, on the pretext to differ with other states. China has taken such a stand.

When I had to point out in this China's foreign policy at that time was a radical one resulting from the Cultural Revolution. Years have passed since then. For signs China has pursued a different policy internationally, and I am firmly convinced for consistent international cooperation in reducing the nuclear threat.

I would like the to point out that Chinese leaders have stressed in more than one occasion that China has never sold nuclear weapons to any other country, nor has it sold technology for manufacturing such weapons, nor will it do so in the future. Under these circumstances, I am completely agreed for China to accede to the Nuclear Nonproliferation Treaty. I think this step is all the more important under present conditions because the present use of nuclear proliferation has once again become the focus of world attention. The reason for this is obvious. The nuclear technology originally monopolized by the great powers is now also possessed by other countries, including some large countries. This position has become rather poor in fact. The military and political situation is unstable in other areas where there is no control over nuclear weapons and where there is a greater danger of nuclear proliferation. This is also an aspect that cannot be ignored. Therefore, I think, according to the Nuclear Nonproliferation Treaty will undoubtedly be of practical significance.

As a large influential country enjoying high prestige in the world, China has obviously promoted the implementation of the Nuclear Nonproliferation Treaty in this respect. I think according to the treaty and undoubtedly have a positive influence on its relations with various countries, including the United States. Internationally, during the recent years in Beijing, one of the most influential of U.S. Ambassadors of State Baker's talks with Chinese leaders was China's accession to the Nuclear Nonproliferation Treaty.

USIA Chairman on Soviet Nuclear Issue

FORN RELATIONS DIVISION, RUSSIAN AFFAIRS CADET
in Russian 11 Dec 91 First Edition 1

[Unsubstantiated report: "Yaeli Over"]

[Yaeli] USIA Supreme Soviet Chairman Rustan Khadbulov has returned to Moscow after completing an official visit to South Korea. Regarding to a question from journalists on the results of his visit to South Korea, Rustan Khadbulov noted that at the present time Korea is seriously concerned by the problem of the possible expansion of the nuclear program, including in the territory of the Korean peninsula. At this was reflected in the meetings with members of the South Korean parliament. During the inter-consultations questions of bilateral cooperation between the Russian and South Korean parliaments were extensively discussed.

Irish Luggage Moved Through Moscow Airport

USPROM, Moscow 12/11/91 1 in Russian 1 Dec 91
First Edition 1

[Article by V. Belitskiy, "Container With Nuclear Fuel From Iraq Brought Through Moscow's Sheremetyevov Airport Without Problem"]

[Yaeli] Known to me mentioned that the AN-12 aircraft flew into Sheremetyevov-2 airport on the night of 18 November. What distinguished it from the general traffic perhaps was the usual "United Nations flag" (UNAH). Even during the inspection, one of the customs officials refused permission to enter the aircraft. So, the formalities did not take up a lot of time. And the group in civilian clothes that met it, after taking the cargo, departed with it for the city of Elektrostal, not far from Moscow.

That is how the operation ended in the departure from Iraq of 11 containers with fresh "nuclear" fuel. More than 12 kilograms of enriched Uranium-235 were transported in two flights on 11 and 18 November through the country's main international airport from the Middle East.

When trying to get comments, I called up Sergei Adanichev, Chairman of Congresskomissiya (State Commission for Industrial Nuclear Supervision) of the Russian Soviet Federated Socialist Republic. He was quite surprised, and he repeated several times. He was unable even to imagine that someone would take the wild idea into his head to land an aircraft with such unusual cargo at a civilian airport.

It is probably possible to underestimate this lack of information on the part of the chairman of the Russian commission, who is called on to protect us from all kinds of radiation and nuclear surprises. His department was created quite recently, and it has not yet especially gotten down to work. But, as it turned out, his "Union"

colleague Valeri Malozemov, Chairman of the now disbanded USSR Congresskomissiya, was also completely in the dark.

Was this what happened, or not? It did not take long to figure out. The aircraft transport operation was arranged by the USSR Ministry of Atomic Power and Industry, which at present means has proceeded as well from more than one possible surprise.

But everything began rather badly. After the defeat of Iraq, when the UN Security Council speculated that Iraq was engaged in creating a nuclear weapon, it resolved to deprive the defeated country of all material necessary for this purpose.

I succeeded in finding a participant in these events, Petr Lavrenchuk, deputy general director of the Yaeli (that is, Yaeli) concern of the Ministry of Atomic Power and Industry.

"Approximately 40 kilograms from Baghdad, in a nuclear carrier near the town of Tarsus (an installation), IAEA (International Atomic Energy Agency) operation found a Soviet RT-2m reactor. Greater, and spent nuclear fuel for it," he mentioned. "As it turned out, it was basically produced here in our country, and it was transferred under contract to Iraq in 1983-84. The uranium was based on aluminum alloy, and speaking in our language, 14 products were 80-percent enriched, and 11 were 10-percent enriched. IAEA—the International Atomic Energy Agency—offered to pay us to take this uranium, specimens of our country, despite it, and make it to the disposition of the agency. AN-12 transport aircraft from the Scientific Research Institute of Civil Aviation was found with a crew of six pilots. Direct special heavy-duty constraints were followed from the Union to Iraq. Inasmuch as the operation was international, the flight was given a United Nations Organization number, UN-511."

So what kind of cargo did they intend to carry? Overall, the most dangerous was the "spent" nuclear fuel. This is what gives off weak radiation. The so-called "fresh" fuel is much "lighter" and it is this that UN-511 concerned, representatives of the Ministry of Atomic Power and Industry aimed to do. In packaging, it gives off a radiation background that is not much higher than the natural background.

We asked Vladimir Fedin, first deputy chief of the Main Administration of the USSR Congresskomissiya (State Commission for Industrial Nuclear Energy Supervision), for a more detailed explanation of the "Iraq cargo." He explained that Uranium-235 belongs to radioactive danger group B (there are a total of four, and the most dangerous is A), and this is rather serious. But what is most frightening here is something else. Given this kind of uranium enrichment, a spontaneous nuclear reaction is possible in the event of an aircraft disaster. To put it simply, an explosion.

Peter Lavrenko also did not exclude such a possibility. It is now he talked a lot about flight safety measures, about the reliability of the containers, and about how impossible it is for so many of the most diverse concentrations to coincide in being about a chart station, but he could not actually exclude the possibility, albeit insignificant, that a TNA-2 accident at the Moscow airport could lead to terrible consequences. In such a case, it would be more logical to land the aircraft with the container away from heavily populated places. Nothing of the sort.

The bag's landed the AN-12 at the airport of the 4th Mathematical military base, after organizing a powerful multiarmed guard for this. Officials of our nuclear mission brought the containers directly to the country's main international airport. When I tried to get an explanation as to why specifically Moscow Sheremetyevo-2, and not to a remote military airfield, I was told indignantly: "Because there is a customs office there."

Obedience to the law is touching. Energy that, as specialists explained to me, the law is this operation was breached is even was. After delivering the container to a heavily populated area, the nuclear workers did not inform either the Congressmenoradomir or the Ministry of Health, also writing under the 1988 clause of the USSR September Soviet Presidential and LRA documents, according to which supervision of this kind of material should be independent of the organization that is carrying out the development and use of nuclear energy in the country. The mission was conducted mainly under its own obedient departmental control. Therefore, incidentally, it is difficult to be confident that the containers that were transported on 17 and 18 November from the nuclear center in bag to Sheremetyevo-2 were not of some way more worrying than "break" had from Lira team-23.

It is a strange idea that Union supervision over the pattern of the nuclear program seems not to exist any longer, but republic supervision has not been quite born yet. And who knows how many copies of this kind are still sitting around our aviation airports? For example, this is not known at Sheremetyevo-2 airport. I met Boris Chukov, airport ground director for security, got the information about TNA-2's "wasting" accidentally from him.

Apparently this was a military flight, he suggested, and they transport everything imaginable through an open air port. "What can break this up?" After all, everything is classified.

Observer Views Control of Nuclear Weapons

[IPS/INB-41421] Moscow Radio, Moscow Press Service in English 1991-12-30 4 Dec 91

Comments by military observer Colonel Vadim Salovoy.

Text: The agreement the leaders of Russia, Belarus, and the Ukraine have signed to form a community of

independent states has again called attention to who is going to possess the nuclear weapons of the former Soviet Union. There is an opinion from our military observer, Colonel Vadim Salovoy:

Nuclear weapons are deployed in Russia, Ukraine, Belarus, and Kazakhstan. Until now the leaders of these four republics have repeatedly said nuclear weapons must remain at the hands of the center, but the decisions that were adopted in Minsk raise some questions. Significantly, the leaders of former Union republics agree that the sovereign states that have come into being on the territory of the former Soviet Union must by no means undermine international agreements on limiting weapons, the destruction nuclear weapons in the first place. This is in the interests of republics themselves. Besides, this can help establish good relations with neighboring countries and clear the way for entry into the international community. What can, as soon as Ukraine proclaimed itself independent it stated full loyalty to the three non-nuclear principles not to have out it export, and not to produce any nuclear weapons. Other republics are not pursuing for the nuclear disarmament.

On the other hand, in military and technical terms the common system of strategic nuclear weapons cannot be divided. If it is to continue functioning, it must be controlled by the center. No republic, except for Russia, perhaps, can afford to maintain nuclear missiles, their personnel, its own development, testing or producing this kind of highly technological weapon.

A forum for strategic nuclear weapons, among other questions, is discussed today by the State Council. The national president, Mikhail Gorbachev, and the presidents of the republics possessing nuclear weapons expect to adopt a final decision. On the morning's eve, the Kazakh president, Nursultan Nazarbayev, said again that nuclear weapons had to remain under central control. It is certain all international commitments to reduce and get rid of nuclear weapons will be abided by, so will the unilateral strategic weapons reduction that President Gorbachev put forward last October.

Republic Ready for Nonproliferation Treaty

[IPS/INB-41421] Moscow TASS in English 1991-12-31 11 Dec 91

[By L. B. INDIUM correspondent Sergey Bilek.]

[Text] Kiev, December 31 TASS—Ukraine stands for large-scale cooperation with the European Economic Community member-states and would like to join the European structure of the near future. Ukrainian President Leonid Kravchuk stressed during his talks with Christian (Kreier, ambassador of the Netherlands and an E.C. official.

The S.S.C. representatives expressed two strains in the Ukrainsky and the new Commonwealth's stand on strategic nuclear arms. According to Kopychuk, Ukraine is ready to join the Non-Proliferation Treaty and to eliminate (as demanded) completely on its territory.

Nuclear Treaties To Apply to All Republics

LON/12/04/93 Moscow TASS in English 1541 GMT
12 Dec 93

(By TASS correspondent Ljudmila Yermakova)

[Text] Moscow December 12 TASS—"The treaty on non-proliferation of nuclear weapons and other multilateral international treaties and agreements of the Soviet Union, which applied to its constituent republics, remain valid with regard to all republics that have ceased to be members of the union. This does not depend on whether they have confirmed their commitments under the treaties or not," the Soviet Committee for Constitutional Legislation stated in a resolution issued here on Thursday (12 December).

This decision was taken in view of the withdrawal of some republics from the USSR as well as a possible cessation of the existence of the union itself, a spokesman at the committee told TASS.

In this connection, a question arose about the validity of multilateral treaties, to which the USSR is a party, such as in particular the nuclear non-proliferation treaty and agreements on human rights, the spokesman explained.

Double Nuclear Arms Cuts Urged

PRIN/12/04/93 Moscow NTV 1700E3 in English
No. 47 12 Dec 93 07:39 18:20

[Article by Arkady Arkhangel, director of the Center for Disarmament and Strategic Stability at the Foreign Policy Association of the USSR, and Thomas Cackrath, senior researcher at the Natural Resources Defense Council of the United States. "Double Is Important: Not START (Strategic Arms Reduction Treaty)"]

[Text] Strategic Arms Reduction Treaty (START) was signed last July after many years of negotiations. The terms set in the Treaty can hardly bring even optimism, however.

The doubling of the strategic armaments of each of the two powers by the year 2000 from more than 10,000 nuclear warheads to 6,000 does not accord much with the widely declared aim of partnership. It can be repeated hundreds of times that Moscow and Washington no longer regard each other as enemies. The regular military confrontation will remain a fact, however, if the two powers continue to keep thousands of nuclear warheads aimed at each other.

Non-Partners, Non-Enemies

Since the nuclear disarmament protocols of the Soviet Union and the United States remain at high levels their demands are aimed at each other largely because there are but no more targets at the rest of the world. The two countries do not have political or strategic reasons to attack each other and are not expected to have such in the near future.

The White House and the Kremlin obviously are in contradiction, as is evident from President Bush's invitation and Mikhail Gorbachev's reply in September and October which proposes a lower arms reduction compared with that envisaged in START. It is a half-century, however.

Washington proposed large-scale measures. One of them is elimination of all ground-based intercontinental ballistic missiles with independently targeted warheads which constitute up to 50 percent and about 70 percent of the total in the Soviet Union and the United States respectively. Subsequently, Washington announced measures for dismantling and placing in depots nuclear arms from heavy bombers, lowering the degree of their take-off readiness and removing old missiles to be scrapped from strategic bombers. Four percent reduction in the total number of warheads.

Instead of going further, Moscow made such a total halfway by proposing to cut the strategic armaments of the two countries to 5,000, not 6,000, nuclear warheads, remove nuclear weapons from bombers, and withdraw slightly more obsolete missiles to be scrapped under the Treaty from the state of nuclear armaments within a shorter time.

Is Expansion Undermining

In the first two years it will not be easy to decide on taking heavy cuts in the ground and sea-based ballistic missiles. First of all, the processes of dismantling, elimination and conversion connected to the reduction of weapons are enormously expensive and technically complex. Two cuts under START would be present standards will require considerable expenditures.

Secondly, a sharp reduction in the number of warheads will call for a more drastic reduction in the number of carriers. For a large part of missiles have multiple warheads. As a result, the Soviet Union and the United States would retain a small number of ground-based missile launchers and a considerable diversion fleet. Mutual collaboration would ensure thereby continuing strategic stability. The question could be concerned to speak of displacing missiles with conventional heads instead of multiple warhead missiles with a large part of forces consisting of mobile launchers. It is a very expensive undertaking, however, and it will take much time to implement these measures. The Soviet Union, with its partnership in a deplorable state, has little possibility of pulling this idea into effect.

Lastly, a more drastic reduction would call for new talks and, since we are living in the interim, it would involve the same limits of \$7.5 billion. The limited costs would be put off again for the sake of a more attractive but uncertain alternative.

The Middle Route

There is a way out nevertheless. During the interim the strategic nuclear forces of the two powers could be reduced not to 4,000 or 5,000 but to 35 percent, to 1,400 warheads for each party, without undermining stability and national security and without additional economic expenditures, without breaching \$7.5 billion, which was worked out with great difficulty.

Signing \$7.5 billion in the summer of this year, the two parties intended first of all to cut offensive armaments, while continuing to deploy new expensive systems: inter-continental missiles, laser weapons, mobile land-based intercontinental ballistic missiles, both with ground-based and orbitally targetable heads, to a small, by the year 2000 the two powers would have cut their forces by 35 percent. Moreover, they would have completely modernized them by enhancing their delivery power. Moreover, they would have to spend money on the modernization of missiles, the distribution of old ones, and measures of control.

\$7.5 billion does not in all respects the reduction of nuclear weapons in this way. Another approach could be based on two principles. First, it is a qualitative exchange in regards destabilizing systems and, second, a broader use of the method of "unloading" ballistic missiles, that is, removal of the warheads from the multiple warhead arsenal of destabilizing missile carriers and their launchers.

Nuclear Unloading Plans

Mutual distribution of destabilizing systems. Moscow should at last agree to a reduction of heavy sub-based SS-9 missiles not to half as specified in \$7.5 billion but to zero. These missiles, each carrying ten warheads of a megaton class, are a cold war legacy. They are regarded in the West as obsolete. One carrier weapon, particularly because they are not fit for a retaliatory blow since they will not "survive" in their class, 35 percent (34 SS-9 missiles are deployed at Kapustinogor and the one 204 in the territory of the Russian Federation). They are produced at the Engels-plant-4 missile plant in the Ukraine.

Strategic armaments of this type are like a stumbling block in the way of nuclear disarmament. They compel the United States to develop countermeasures: 15 sub-based Peacekeeper missiles, each carrying ten warheads, and 40 Trident-2 ballistic missiles based on submarines. [Trident-2 missiles, each carrying eight warheads, are deployed on four new submarines of the Ohio class. Thanks to their high accuracy they are intended to hit Soviet cities.]

Seven SS-24 missiles are critical to the Peacekeeper system. Ten of these missiles (the weapons are produced in Pechengrad) are based in sites in the Russian Federation and 40 in the Ukraine. They would have to be dismantled, too, especially since they are a destabilizing and vulnerable target and are fit for the first strike only.

Then, Moscow would dismantle two carriers—304 missiles (1,040 warheads) and Washington would do the same—140 missiles (1,260 warheads). Moreover, it would give up plans of deploying 136 more Tridents-2 missiles (1,168 warheads) on the other 14 submarines of this class.

The method of complete "unloading" (in arms) could help to withdraw much more quickly and cheaply all the offensive ground- and sea-based missiles which were to be destroyed under the Treaty. Otherwise, the statements on their removal from the state of alertness cannot be verified. If the parties concerned detach all the warheads from these missiles and put them in storage, upon an additional prohibition of control and thereby withdraw them from the nuclear balance, the dismantling of these missiles, sites and submarines could be effected over a longer period. This could be done with less expenditure, and the way of using the systems for peace purposes could be thought out thoroughly.

The necessary advanced controls should be partially "unloaded." It will be a quick and cheap reduction of the number of warheads, and their construction and vulnerability will decrease at the same time.

Concrete Can Ship Quotas

In 1980 the United States would have 640 ground- and sea-based missiles, 20 submarines and a total of 2,400 nuclear warheads. The Soviet Union would retain 1,140 missiles, 20 submarines and a total of 2,400 warheads at its strategic offensive arsenal.

In other words, by 1980 (instead of 2000) the two countries would have increased their arsenals of warheads not by 35 or 50 percent, as Gorbachev proposed in October, but by 75 percent. Without breaking the agreement made by the Soviet General Staff, the United States would have sought 75 percent of its warheads on the sea and the Soviet Union—about 50 percent of its warheads on land. The Americans will traditionally retain slightly more warheads and the Soviet Union—a few more systems.

All this can be achieved with less expenditure while maintaining stability and preserving the \$7.5 billion clause. Besides, by combining unilateral and reciprocal measures the two parties could maintain the military savings partly in line to the terms of treaty. Thus the main programme of modernization will have to be completed cheaply, but in any case this will be imposed by the economic situation. Let the military-industrial complex of the two powers put up with the present situation. The cry of military necessity is clear.

It is necessary, of course, to weaken the restrictions on "unloading" which are specified in S.T.A.T. for fear of uncontrolled "reverse loading." The system of control can be extended considerably. Let inspection stop permanently at missile bases, airfields and ports. As a result, the two countries will have roughly equal opportunities for a common enterprise (2,000 to 2,500 warheads and missiles from the states).

The second stage, covering a period from 1995 to 2000, will call for S.T.A.T.-2. There will be time to work out such a treaty in the first half of the current decade. The new treaty could be based on the principle of a further "unloading" of missiles, up to the complete removal of warheads from some portions of missiles. The missiles will remain in their positions while the warheads will be kept in stores under the permanent control of the other party.

What Missiles "Leave This"

As a result, the United States will retain 100 silo-based intercontinental ICBMs of the type of "unloaded" Minuteman-1 or new, Midgen-star missiles and 400 missiles in silos, but without warheads. Its total force would consist of 14 Ohio-class submarines equipped with Trident-2 or a missile of a new type, each with two warheads.

The Soviet Union would have 400 ground mobile SS-20 missiles, plus 200 silo-based SS-19 and SS-23 missiles "unloaded" to zero. The missiles on Typhoon submarines would have not less but three warheads each, while the missiles on 13 Delta IV (Delta) submarines could be "unloaded" from three to one warhead.

In all, the United States will have 14 submarines and 600 missiles in active service (including missiles with removed warheads), and 600 nuclear warheads in firing post, whereas the Soviet Union will have 19 submarines, 600 missiles and 600 warheads. In other words, the strategic arsenal will be cut by 90 percent (in the number of warheads) while the number of carriers and warheads will be roughly one to one, that is, close to the ideal of stability. The opportunities for a "reverse" will be equal, too.

The reduction of the number of warheads below the 1,000 level is not only of technical but also of political-strategic importance. The nuclear weapons of the two countries will become comparable in their amount while keeping a substantial "unloaded" reserve with the forces of other nuclear powers. The bipolar nuclear confrontation will cease, and Moscow and Washington will be able to conduct on that basis an equal dialogue on the strategic aspect. The other nuclear countries could be drawn into the process of multilateral cuts.

And the last thing, such measures are possible if strict restrictions are imposed on the deployment of strategic anti-missile defense, including ground- and space-based interceptive systems. For this reason Moscow's concern in October to discuss a non-nuclear anti-missile system

seems to be a wrong decision (as if no one knew before that the Strategic Defense Initiative is a non-nuclear program). The two powers have far more promising areas of cooperation, including cooperation in achieving the aims to which the "joint" anti-missile defense system is justified.

Officials Agree No Nuclear Arms at German

OWEN LUTHER/NO Moscow 16/12/93 in English
1571 GMT 1 Dec 93

(Transmitted via RYBOD)

[Text] According to the newspaper "Pravda" officials of the Tatar military garrison have issued a statement assuring residents of Estonia that there is no nuclear weapons on its territory.

The statement was allegations of Estonian deputy Prime Lars that the garrison has nuclear weapons do not correspond with reality.

The garrison's Command is to hold a news conference for Estonian and foreign journalists on the issue December 18.

Nuclear Weapons Talks With Ukraine Denied

Transfer of Warheads Alleged

LUTHER/NO Moscow 1/12/93 International Service
1571 GMT 1 Dec 93

(Re TASS correspondent Andrei Samoilov)

[Text] Moscow 4 Dec TASS—The General Staff of the USSR Armed Forces has no information whatsoever on talks between the Carter and the Ukrainian leadership on nuclear arms deployed on its territory. This is what Colonel General Leonid Gerasimov, first deputy chief of the General Staff, told the TASS correspondent. "I do not think there is a need at all to discuss issues of this kind," he added. The query was addressed to the General Staff following a report in the NEW YORK TIMES of 1 December. It said that USSR central authorities along with "started talks with the Ukraine on the issue of transferring control of 4,000 nuclear warheads to the independent state."

Shaposhnikov on Ukraine

OWEN LUTHER/NO Moscow 15/12/93 in English
1571 GMT 1 Dec 93

(Transmitted via RYBOD)

[Text] The USSR Defense Minister Marshal Sergei Shaposhnikov has said that the Ukraine will strengthen its own defense space and armaments borders, as well as the units of nuclear forces. He believes that more talks on these issues are still possible. The Defense Minister has dismissed reports that President Kravchuk of the

Moscow has asked the USSR Defense Ministry for a say in the control of nuclear weapons.

Korotchuk Reveals New Missile Command System

LJANJ, 1991/01 Moscow. TASS International Service in Moscow 18/12 GMT 4 (see 4)

[The LUKENGOLOM correspondent, Aleksandr Litvinov]

[Moscow] Kori. 3 Dec (TASS)—A new command system to instruct President Leonid Korotchuk today was devoted to the agreement on a Commonwealth of Independent States of Belarus, Ukraine, and Russia.

According to statements with the documents, Leonid Korotchuk drew particular attention to the fact that the agreement does not encourage the creation of unified structures of administration, with the exception of a collective command of strategic forces.

The Ukrainian president explained that previously the president of the USSR has had the launch button at his disposal, but now a different system has been created. Now, in order for missiles to be launched, three buttons must be pressed simultaneously, each of which is under the control of one of the members of the Commonwealth. If one of them should press it, the launch will not take place until three and three simultaneously [primary control].

Officer Discusses Chemical Weapons Destruction

PRINJ, 1991/01 Moscow. LUKENGOLOM TULZDA in Moscow 11 Dec 91 First Edition 9.1

[A distributed report on interview with Major General I. Yevseyev, professor, doctor of technical sciences, and deputy chief of the USSR Defense Ministry Chemical Troops, place and date not given. "Will We Destroy the Chemical Weapons?"—first paragraph is editorial introduction]

[Text] Exactly one year remains until the date when we should start destroying our chemical arsenal under the appropriate Soviet-U.S. treaty. That treaty has not yet been ratified. But the problem of destroying chemical weapons will nevertheless face us in all its magnitude in the very near future, but we must be ready to tackle this problem. Major General I. Yevseyev, professor, doctor of technical sciences, and deputy chief of the USSR Defense Ministry Chemical Troops, discusses this with our correspondent.

No Matter How Complicated, It Will Be Necessary To Destroy...

[Yevseyev] Two Soviet-U.S. documents have been signed in the sphere of chemical weapons. The first is the Washington Memorandum, which envisages a whole series of steps in the sphere of mutual consultation about the entire chemical weapons, particularly weapons stocks. Such an exchange was carried out in 1990. We declared the quantity of toxic chemical agents in our possession

and gave full details about where they are stored and produced and the makeup of our chemical weapons in terms of types. The United States naturally did the same. Under the memorandum, reciprocal visits have been made to chemical weapons storage and production facilities. Moreover, Soviet and U.S. experts have created chemical weapons destruction facilities.

On 1 June 1990 the USSR and U.S. Presidents signed an agreement envisaging massive steps in the sphere of reducing the entire chemical warfare potential. The USSR has 40,000 tonnes of toxic chemical agents, the United States 30,000 tonnes. Under the agreement both sides are committed to having no more than 1,000 tonnes of chemical agents each by the year 2002. This agreement has not yet been ratified.

But there is another factor which should not be forgotten. The multinational disarmament conference in Geneva, as part of which talks on chemical disarmament are being held, is continuing its work. And whenever three-four years ago the possibility of elaborating an all-encompassing convention not only banning the creation, use, development, production, and stockpiling of toxic chemical agents, but also envisaging their mandatory destruction, would have seemed attractive today its elaboration is making massive progress.

According to expert assessments, the text of the convention could be elaborated in 1992. For it to come into force, the convention has to be ratified by 40 states. This could take two years. So its entry into force toward the end of 1994 is altogether probable. And this means that, one year on, the countries party to the convention should start the process of destroying chemical weapons.

But the question is to whether technical reasons are preventing us to destroy chemical weapons in a perfectly timely way. I would like to make things clearer here. The United States stopped producing them in 1967 and resumed doing so only in 1981, making a small quantity of binary chemical weapons. But they are not the significant thing here. That is to say U.S. chemical weapons have been stored for at least 24 years. There is a second factor too. They differ from ours in design terms. The Americans have made them extremely low of light atoms in their types. They have somewhat different requirements regarding the conditions of the storage. This is due from the magnitude of their effectiveness. Moreover, U.S. chemical weapons are one in a such a way that the problem of destroying them is a pressing one. And 30-year-old weapons are hardly weapons any more. There are no more delivery vehicles. A bomb, after all, is developed for a specific type of aircraft, and a shell for a specific artillery weapon.

The Soviet Union wound up chemical weapons production in 1987. We have virtually no problems regarding storage either. Some 10-15 million rubles [10] are required each year for the storage of toxic agents. This

outlet does not bear comparison with outlet in chemical case. And we can store chemical weapons at least 10-40 years.

What, Then, Has Really Been Done?

In the second half of 1990 the USSR Defense Ministry began showing serious concern over the actual state of affairs and the technical basis for the fulfillment of this agreement. Chemical weapons are kept in military depots and bases and the military bears, if not legal, then at least moral responsibility for fulfillment of the agreement. No one in our country bears legal responsibility for the destruction of chemical weapons.

At the start of last year the USSR Council of Ministers made the decision to convert the installation in Chapevsk, the only one in our country designed to develop chemical weapons destruction techniques. We have thus been deprived of a facility and therefore been unable to verify chemical weapons destruction techniques on an industrial scale. Given this, in March 1991 the USSR president ordered the Defense Ministry to finalize within two months the chemical weapons destruction program, which had earlier been considered at USSR Supreme Soviet sessions and committees, and submit it to the Council of Ministers. It was to examine it, draw up draft laws ensuring the implementation of the program, and appoint a state commission to determine the location of destruction facilities.

On 11 May the outlined program was submitted to the USSR Council of Ministers, where virtually no one has taken it up. It has to be bluntly said that the president's instruction has not been executed, nor have laws regulating chemical weapons destruction been drafted. Such laws do exist in the United States. They define who is responsible for the destruction of military stockpiles, who follows on the program, how it relates to the country's security, and so forth.

A new aspect in the development of this problem has been observable in this year approaching its end. But no longer at the disintegrating Union level, but at the Russian level. Even earlier deputies representing Russia and individual Russian officials were present during various discussions of programs and attended international conferences. We saw these persons, but saw no activists. Then in November the first substantive briefing of Russian Supreme Soviet deputies on the chemical weapons destruction program took place. A report on the program was delivered on 27 November at a working conference in which deputies and chairmen of committees and commissions took part. This discussion could, it seems to me, lead to some practical steps.

We have for a long time now stated pretty clearly that the problem of chemical weapons, as distinct from the problems of other types of weapons of mass destruction, is a Russian problem. There are nuclear weapons on the territory of a few republics. Chemical weapons have been produced in Russia and they are also stored on its territory. It is difficult for me to say whether only Russia

will destroy these weapons or whether the republics of the former Union will take part in this work. At best I can be said that the destruction will be paid for out of the Union budget, if it exists. But you can scarcely count on any other participation. And given this, it follows that the commitment ensuring the destruction location must be Russian. The laws must be Russian. The institutions and enterprises ensuring contracts to carry out the work must also be Russian.

What, Then, Are the Facilities To Be Constructed?

The program envisages three possible options. The first is to convert existing chemical weapons production plants into destruction plants. What is the advantage? These are state-of-the-art plants in terms of equipment. They certainly need to be reorganized and modified. But the basis is there: sources of power, purification facilities, personnel, and the right moral attitude on the part of the workforce there.

The second option is to destroy the chemical weapons at their storage sites. But there are implications here. Virtually all the chemical weapons storage sites are close to major population centers. They were created at a time when no attention was paid to these aspects. Moreover, sites are constantly growing and getting closer to the storage sites. And in our estimation, the risk of creating facilities at the storage locations is considerable. It substantially exceeds the risk involved in transportation. In our estimation, transporting chemical weapons is less dangerous than transporting chlorine. 10,000-40,000 tonnes of which "clay" along our country's coastline each year.

The third option is to select regions in the country which are remote from cities, populated areas, and rivers, but close to railroads and power installations. We have carried out such work, and a whole series of such regions can be identified in the country. But here too we will come up against a psychological barrier.

How is this problem to be resolved? I think the only way is to pass laws which lay down compensation for people for psychological damage. We are talking about a system of insurance. Risk has to be paid for. And if someone knows that he will receive compensation on agreeing to the using of a facility, his reaction could be different. For example, we have been following very carefully how this is done in the world. In France nuclear electric power stations are used in regions which are considered unsuitable for such construction in our country because of their population density. But the people there do not protest against nuclear electric power stations. Or take Nevada, for example. Its refineries are placed at the very edge there because on the one hand they know that everything is done to ensure their safety, while on the other hand, the test site provides employment in Nevada.

According to prices at the start of 1991, the destruction of chemical weapons required \$1.01 billion and 5.46

million. Now that costs could rise to 8.24 billion. The sum will decrease as better goes on as a result of the dismantling of the matter.

But will we get anything out of the destruction of chemical weapons apart from cleaning our country of this lethal arsenal? Yes, the facilities set up to destroy chemical weapons can clearly be used to destroy toxic waste in 5-10 years time after they have performed their task. We have more pesticides past their storage life in our country than we have chemical weapons.

Moreover we have technologies which encourage destroying toxic agents by converting them into useful energy for the national economy rather than incinerating them. For example, incinerate contains 20 percent arsenic. While the arsenic content at the deposit in Germany, the sole deposit in our country, incidentally, is only 1 percent. By our estimates, 8.25 billion of the 1.4 billion earmarked for the destruction of chemical weapons could be managed.

Ukraine To Destroy Nuclear Arms Within 7 Years

L2014/2000/61 Moscow Radio Moscow World Service in English, 2000 GMT 11 Dec 91

[Text] Ukrainian Foreign Minister Anatoly Zertko has told his Bulgarian counterpart, Stoyan Ganev, in Sofia that Ukraine is going to destroy all the nuclear weapons in its territory within the coming seven years, and if other nations offer a material aid it will take it there is four years to destroy the nuclear hardware.

Chemical Weapons Supply Stockpiled in Country

L2004/2/2000 Moscow ROSTP-B-TT W in English 2200 GMT 11 Dec 91

[From the "Military News" section]

[Text] The entire chemical weapons supply—around 81,000 tons of chemical poisoning agents—is stockpiled in Russia's territory. The spokesman of the chemical industry confirmed does not rule out a possibility that under the present political conditions Russia will have to shoulder all the expenses of doing away with chemical weapons. In late-November at a working conference the chairpersons of institutions and committees of the Russian parliament were introduced to the program of destroying chemical weapons that the USSR had failed to implement. To date there is no information whether any specific decisions on the destiny of chemical weapons have been taken. The deputy chief of chemical weapons of the USSR Defense Ministry Major-General Igor Vasyukov maintains Destruction of the Soviet chemical weapons supply is a purely political action interconnected with any technical matters. The Soviet Union discontinued their manufacture in 1987 and annually expended the [million] 1.10m [million] to store them. In such a way, the technical necessity of destroying the Soviet chemical potential could arise in 10-15 years time only. Experts estimate that the 1.4bn [billion] and

1.5 [billion] 1.4bn were needed early this year to implement the program of chemical weapons destruction. In 1992 the 20bn might be needed to meet those goals because of inflation. Hard currency expenditure shall remain constant.

Deputy Seeks Data on Alleged Weapons Lab

L2004/2/2000 Moscow L'VESTIV A in Russian 4 Dec 91 1 hour Edition 2

[Article by V. Shvets: L'VESTIV A staff correspondent, "Siberian Ulcer Being Fought in Siberia"]

[Text] Mentions in L'VESTIV A (No. 274) of the fact that a secret bacteriological weapons development laboratory had been relocated to a site near Irkutsk has alarmed Siberians.

Immediately after publication of a correspondent's report entitled "I Know How the Siberian Ulcer Got to Sverdlovsk" Ya. Shvets, a people's deputy in the Irkutsk city and oblast soviets, asked the official Federal Security Administration (FSA) administration to clarify the matter.

A few days later he received an explanation reply which stated that "no information regarding the relocation of the laboratory to the vicinity of Irkutsk or on location anywhere within the territory of the oblast has been uncovered." True, the reply contained the caveat that, firstly, the FSA did not have the information which was of interest to the oblast population at its disposal and, secondly, Ya. Shvets was advised "for the sake of clarity regarding this important matter" to send a deputy's inquiry to the USSR and RSFSR ministries of defense, as well as to the Russian Government.

These disclosures prompted the city's leaders to have serious doubts about the sincerity of the reply. At its latest session the Irkutsk City Council (its lower executive committee) created a commission specially authorized to verify the report printed in our newspaper. The commission members include both deputies and representatives of the population. Professor M. Vashchenko, deputy chairman of the East Siberian Division of the Academy of Medical Sciences (Siberian Branch), was asked to head up the investigation. The authorities assure the medical personnel will have better luck than the intelligence officers did.

Reportage on 1979 Sverdlovsk Anthrax Event

Official on Inquiry Into Event

L2000/4 Moscow L'ITERATURNAYA GAZETA in Russian No 41 11 Nov 91 p 2

[Report by L'ITERATURNAYA GAZETA correspondent for the Urals Natsional Zvezda under the rubric "Continuing a Topic" "Once Again on Military Secrets"]

[Text] Yekaterinburg—LITERATURNAYA GAZETA was first in the country to conduct an independent investigation on the causes of the 1979 anthrax outbreak in Sverdlovsk. We maintained that this calamity took place not because of consumption of "infected meat," as the official version stated, but after an emergency discharge of substances related to biological warfare ("Military Secrets," LITERATURNAYA GAZETA, No. 34 [1990]).

This topic was continued in one more article ("Military Secrets, Part II," LITERATURNAYA GAZETA, No. 39 [1991]), which provided new arguments supporting the same conclusion.

On the basis of this newspaper's investigation, a deputy's inquiry was sent to the president of Russia, Boris Yeltsin assigned the handling of this problem, which produced serious international reverberations. To Airskoy Yablokov, state adviser on ecology and health care, corresponding member of the USSR Academy of Sciences.

This is what A. Yablokov told our correspondent:

"I will see to it that this matter is taken to its logical conclusion. The first step, which we have already taken, was to contact the KGB—let them dig into their archives and officially reply 'yes' or 'no.' If 'yes,' if the military admits fault, then the issue is resolved in principle, and one of the main tasks that remains is to get more precise figures on the number of families that perished, and to determine the amount of monetary compensation. If 'no,' then a government commission will be created on the basis of the argued conclusions reached by the press."

"However, I would like to state right now, before the investigation of the Sverdlovsk emergency comes to an end. Our parliament should adopt a law that will make the development, production, and storage of biological weapons a criminal offense. A law of this kind was adopted in the United States last year. Also, this crime should be put in the category of those without a statute of limitations—that is, a crime against humanity."

Suspicion of BW Research

©APRINB Moscow KOMSOMOLSKAYA PRAVDA
in Russian 30 Nov 91 p 4

[Report by KOMSOMOLSKAYA PRAVDA correspondent V. Chetnikov: "Plague in the Backyard: How the USSR Stopped Developing Bacteriological Weapons (BW)"]

[Text] Yekaterinburg—KOMSOMOLSKAYA PRAVDA has already reported more than once that Yekaterinburg students went to harvest potatoes in the Krasnodonskiy Rayon are striking a strange disease. The first harvesting brigade ended up in a hospital more than three years ago, and the causes are still not clear. Then the illness spread beyond students and beyond Krasnodonskiy. Among the various explanations offered for the mysterious illness are suggestions that perhaps the students

were subjected to the effects of either chemical or bacteriological weapons. Especially considering that there already is such a precedent—the still unsolved outbreak of anthrax in 1979.

On 4 April 1979, Sverdlovsk emergency center started receiving the first calls. They were coming from the same area, and the symptoms described were the same: high—up to 41 degrees [Celsius]—fever, coughing, vomiting. Soon the departments of City Hospital No. 24 were filled to capacity and patients were being taken to the neighboring hospital, No. 20.

The initial diagnosis pronounced in the hospital was pneumonia. It was being updated; tests were being done. By evening it became clear, however, that the diagnosis was wrong—most patients were dying. They died suddenly, talking to the doctors vacantly and lucidly only minutes before death.

The next day a Voice of America (VOA) broadcast said that in violation of the 1972 convention, the Soviet Union was developing bacteriological weapons. The proof—the discharge of an anthrax strain at Military Base 19 in Sverdlovsk, as a result of which hundreds of people had already died and all of Sverdlovsk would soon be a dead city.

A.N. Solov'yev, first deputy director of the Sverdlovsk city health services department, who was in the midst of the events from the very first day, maintains that at the time VOA broadcast this information the medicals did not have a precise diagnosis yet. Test results arrived much later and partially confirmed the information broadcast on the short wave. People were getting ill with, and dying of, anthrax.

I do not know whether the regime of secrecy in the Soviet Union caused more inconvenience for anybody than it caused for the Soviet Union itself. Still, at that time during the last years of the Brezhnev era and on the eve of the Olympic Games, which are prohibited from being held in a country with especially dangerous diseases—including the "Siberian plague"—under the shadow of the military-industrial complex, this whole incident was put under such secrecy that the city was immediately rife with the most incredible rumors.

There were good reasons for that. It was markedly noticeable that the disease had struck the area located in the south of the military base. This was also the direction of the wind prior to the incident. People living nearby maintained that they saw the discharge in the form of a pink cloud that rose behind the high fence sometime between 1700 and 1800 hours the day before. There were rumors that there were uncountable corpses on the base itself, as well as next to it. It is indeed true that an almost entire shift from the ceramics plant that is located next to the military object was taken to the hospital. Rumors affected the medicals, too, having received assurances from Base 19 that the military had nothing to do with the

incident, they started responding to calls in plague-protection suits and gas masks. Relatives were refusing to take and bury the dead.

As a means of destruction, anthrax is one of the most effective. In its natural form, skin anthrax is most common. People contract it through contact with infected animals. In its intestinal and lung form, the mortality rate is 80 to 100 percent. The lung variety is most suitable for use as a weapon. The incubation period is very short—six to eight hours, death is instantaneous, and transmission from person to person is unlikely. The main problem is the means of dispersal and of subsequent cleanup, since in natural conditions the "Siberian plague" is not carried by air, but can remain in the soil for decades.

In 1979, the overwhelming majority of patients were dying from the lung variety, resulting in swift death.

To liquidate and to establish the cause of the outbreak of anthrax in Svordlovsk, a government commission arrived. It was headed by a deputy minister of health, USSR Chief State Physician-Hygienist P. N. Burganov.

A station was set up at Hospital No. 40; all patients even remotely suspected of having contracted "the Siberian plague" were brought there. For treatment, in addition to the usual medications, live anthrax vaccine was delivered from Tyumen. But since Russians have always believed that it is better to overdo than not do enough, a mass vaccination of the population was instituted.

More than 1,000 Svordlovsk residents were vaccinated. Senior medical school students were drafted to go door-to-door and implement preventive measures. Some were dismissed from school for refusing to fulfill their physician's duty. Frightened by the panic, students were simply afraid to go into the nexus of infection, despite knowing that the disease was not transmitted by human contact. Nobody was certain, however, that they were dealing with the same disease that was described in the textbooks.

The all-out immunization did play a certain positive role. However, in the words of the above mentioned Sokolov, this positive is nullified by the death of seven people caused by the universal inoculation. During the autopsy on these people, in addition to the main virus, a virus from the vaccine was detected—which accelerated the illness and led to death. Aleksey Nikolskyevich says that even then he spoke against the vaccination, even to the former first secretary of the former CPSU obkom [oblast committee] B. Yefimov, and later wanted to write a dissertation under a disguised and soft title, "The Disadvantage of the Vaccine." The obkom dismissed his rebuttals, and also advised him against writing a dissertation.

Two months later, the epidemic was over according to official data; it took 64 lives. Svordlovsk did not have a crematorium then, so they were buried in the clay soil of the Eastern Cemetery. chloride of lime was poured all

around the burial site. Now this place is marked with a red cross on all city development maps, so that even many years later no work will be done there, and death is released again.

The official version of the incident, published in the *ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOLOGII* (1980, No. 5) and signed by Professors I. Brudershteyn and V. Nikolskov, blamed everything on private enterprise. Allegedly the farmers started the mass slaughter of infected cattle. That allegedly the meat, again on a mass scale, was being sold on the farmers market. Thus, in addition to everything, a class underpinning was put to the incident.

Actually, there was indeed infected meat. In this case the Svordlovsk procurator displayed an amazing perspicacity and operational skillfulness. Having gone through the chain of persons selling and buying meat, it arrived at one man who had slaughtered a cow dying of the "Siberian plague." Two other cows belonging to the same owner turned out to be infected too. The cow carcasses were burned, the man was investigated by the organs. Otherwise, no other mass slaughter or respective mass sales of meat was discovered. It was strange even to suggest that the farmers would suddenly start slaughtering their few remaining cows in the spring (?) and all of this went unnoticed by various watching services. But even had it indeed happened, the infected meat could not cause the lung variety of the "Siberian plague."

It seems that the government commission itself did not particularly believe in the version presented to it. IRR, of course, who would Burganov start on treating affected areas from the air, washing roads with a soap solution and cautions, and laying asphalt (to cover contaminated soil). All of this only reinforced the opinion of Svordlovsk residents that blame should be laid on the emergency at Base 19. So what kind of a base was it?

I have in my possession the copy of former USSR Minister of Defense D. Yarov to the inquiry from deputies of Kraevets of the Yekaterinburg City Soviet, dated 2 June 1990. The minister writes: "Said short in Svordlovsk is a structural subunit of the Scientific Research Institute of Microbiology of the USSR Ministry of Defense—the center of military epidemiology. This institution is engaged in researching methods for antibacteriological protection of troops and the population; in particular, they are developing methods for disinfecting areas of habitation, military equipment, and armaments and facilities, as well as means of protecting people from biological attacks and of rapid detection of harmful substances in the environment." Further on in the letter, D. Yarov mentions the official version of food contamination.

There is one more puzzle in the letter. Director Timofeevich writes: "Pathogenic microorganisms are not used in the work of the sector." And three paragraphs later: "In developing vaccines, the institute's laboratory did not have in their possession the quantity of

pathogenic material that could have caused the contamination of the environment and through that of the people." Do you not agree that there is quite a difference between "not used" and "not possessing such a quantity?"

For clarification, I went to the deputy chief for science of Base 19, candidate of technical sciences Colonel G. Arkhangelskiy. He said that what they use in their work are mostly strains of biological weapons, bacteriumes, however, and with great precautions, they use micro-organisms of pathogenic organisms. In 1979 the base was developing a vaccine against anthrax. They were not brought onto the efforts to liquidate the outbreak. Despite the fact, said Col. Arkhangelskiy, that at that time the base specialists could have provided substantial help to the city. Now they themselves would like to know what actually happened.

There are facts, however, that indicate that the base had nothing to do with the epidemic. For instance, the version of a weapon discharge (at least, in finished form) does not hold water. In 1979 over 500 were hospitalized, but only 64 died. Naturally, it simply does not make sense to make a weapon of such low effectiveness.

There could be the possibility of a discharge of an unfixed vaccine, specially activated for use as an effective antidote in combat conditions. But, first, are there ways to activate a vaccine? Second, and this is most important, why did the infection spread over such an enormous area, covering not only the vicinity of the base, but also the chemical machine building plant, the Krasnoyarsk settlement, and the oblast's Sovetskoye Rayon?

Then, the cause of the outbreak is still not known. Only one thing can be said with certainty—a new epidemic of anthrax could start in Yekaterinburg at any moment. The reason for that is the improper liquidation of the consequences of the 1979 epidemic. I want to remind that the anthrax bacillus may remain in the soil for decades. It is hard to eradicate it, even if the entire area is burned out. It will simply submerge several centimeters into the water and survive.

Perhaps, we should look into the recent past for the cause of the strange disease striking students in Krasnoufimsk fields?

The investigation continues.

Krasnoyarsk Plutonium Plant To Shut Down

by [Author] (L. Moscow [ZVEST]) (in Russian)
14 Nov 81 Union Edition p. 4

[Article by TASS correspondent Yu. Khon, especially for ZVESTIYA. "Underground AES [Nuclear Electric Power Station] Will No Longer Produce Plutonium"]

[Excerpt] This is the first report from the closed city not far from Krasnoyarsk. The underground nuclear station of the Krasnoyarsk mining-chemical combine is situated

here at a depth of 250 meters. The station is in a subiding condition—"running out." Its complete halt is a result of the initiative of the top leadership of the USSR and Russia to stop the production of fissile materials.

The concrete road that stretches along the shaft of the Yenisey leads to a tunnel situated at the base of an enormous mountain. It started to be laid in the 1950's, when the government made a decision to construct constant graphite reactors for the production of ^{239}Pu and, to put it in a more straightforward way, material for atom bombs. In those days, the principle of building such facilities deep under ground began to be employed.

It was believed at the beginning of the 1960's. Enemy aircraft will not reach the center of Siberia. Well, in fact, the underground facility is not threatened by anything today either even a nuclear strike. According to all drafts, the facility is supposed to work in wartime as well. The 250-meter stone road actually covers the entire area from above. The tunnels themselves have several well-strengthened areas that are capable of suppressing a shock wave that rushes into them. Water, which is necessary to such a "breath," is right nearby—there is plenty of it in the Yenisey.

And so we are at the end of our long journey. In the way, we continued. Approximately as much cement was used in finishing off the tunnels as would be required for one more Krasnoyarsk hydroelectric power station. There is an atomic reactor at the bottom of each of the huge artificial "caverns."

"The first two reactors are designed," says Pavel Morozov, the combine's deputy chief engineer who is escorting us. We will stop one at the beginning of July 1992, and the second—within a year or two. The matter is more difficult with the third machine. When we stop it, we will be left without heat and energy immediately. It serves to heat a city of almost 100,000; the steam turns the generators of the electric power station.

We enter the office of Vladimir Kaban, the chief of the station.

"Starting from the moment that I came here 30 years ago as a graduate of an institute, I heard one thing—we are performing important work. Our former minister said from the stage in the House of Culture. Your combine was started, and the scale in the international arena became balanced. Because of our nuclear weapons, we are free. And it is only now, probably, that we are beginning to understand that the resources destroyed at the manufacture of plutonium could be used for other work," explains Vladimir Nikolayevich.

"I think that our secrets did not last for a long time," Pavel Morozov said, joining the conversation. "There are interesting proposals on international cooperation

For example, French specialists are prepared to supply equipment for the manufacturing of benzotriazole, a substance of this quarter is being delayed. But I am confident, life will not end. Our specialists have begun to go abroad. Several years ago, we did not even dream of this. The proposed arrangements of especially pure products—gallium arsenide—will certainly lead to the fact that we will be forced to open our own gates."

"This material is used for the manufacture of an electrical base in electronics. In the Soviet Union, for example, a program has been developed for its production estimated at \$2 billion. But at the Krasnoyarsk nuclear facility, it can be produced by recovering for the resources. Next year, it is planned to obtain the first samples here, which is pretty high on repeat in our country." (language omitted)

GERMANY

Genscher on USSR Weapons

6115171/1991 Cologne Deutschlandfunk Services
in German 1900 GMT (3 Dec 91)

[Interview with Foreign Minister Hans-Dietrich Genscher by Hans-Joerg Krueger on 15 December; place not given—recorded]

[Excerpt] [passage omitted] Regarding the Soviet Union, there is the additional problem of nuclear weapons. This problem does not exist in Yugoslavia. We have an elementary interest in getting an absolute guarantee for the control of the nuclear weapons. We think that in addition to this control, the short-range nuclear missiles and nuclear artillery must be destroyed without delay both in the West and in the former Soviet Union because they are weapons systems that are difficult to control. Strategic weapons are less dangerous but they are easier to control.

However, I would like to draw public attention to two other points that I consider equally dangerous. First, there is the danger in the military area that nuclear weapons could get into the wrong hands, and there is the danger that the know-how involved in the production of nuclear weapons and other weapons of mass destruction could get into the wrong hands and minds. We discussed the problem with the Soviet Union; the problem is to how to prevent experts on the production of nuclear, chemical, and biological weapons from being hired by other countries.

Germany will develop an initiative regarding the control of the transfer of know-how in the production of weapons of mass destruction. Under our laws, such transfer of know-how is a punishable offense. We think that it should also be punishable under international law.

Second, there is the danger in the area of nuclear reactors, the safety of nuclear power plants for civilian use. The standard is disastrous. The state of the nuclear reactors is even substandard, and many reactors are not even checked for safety. That, too, is a problem that concerns the international community. Here we would also like to see common, coordinated action.

[Krueger] You addressed the danger of the transfer of know-how. How can you guarantee that Soviet scientists and nuclear experts will not pass on their know-how to countries like Iraq, for instance?

[Genscher] National laws and international conventions that impose sanctions against countries that are trying to procure such know-how could help guarantee this, I would like to make it quite clear that we consider it necessary for the peoples' conscience that the possibilities of action by the international community regarding the enforcement of elementary security requirements be enlarged.

That is why I advocate creating an international court to take action against those responsible for offensive wars, environmental wars, and the production of weapons of mass destruction.

The international community must be allowed to intervene where there is the danger that weapons of mass destruction are proliferating. In this respect, it is not just very late, but we are directly facing a situation where proliferation cannot be avoided. To me it is one of the most important challenges of this time, and the disintegration of the Soviet Union should be a reason to act. [passage omitted]

Politician Warns Soviet Nuclear Weapons Danger

1208172/1991 Berlin ADN in German 1900 GMT
3 Dec 91

[Text] Malle (ADPs—Northern German, Social Democratic Party defense policy spokesman, has warned of the possibility of a nuclear war in the Soviet Union. "If in the next few weeks there are not serious nuclear powers in the territory of the former Soviet Union, then the danger of a nuclear war cannot be ruled out," the politician told the MITTELDEUTSCHER EXPRESS (Monday [9 December] edition) which is published in Malle.

Genscher therefore demanded that a system of collective security should be created within the framework of the CSCE. The control of Soviet nuclear weapons is of crucial importance in this. In view of the crisis in the USSR, the threat posed by Soviet nuclear weapons cannot be overestimated.

Police Detain Smugglers of Arms Into Croatia

1211110469 Belgrade TANJUG in English
1900 GMT 11 Dec 91

[Text] Bonn, Dec 12 (TANJUG)—The Regensburg police announced today that five persons, who intended to smuggle a large quantity of arms into the Yugoslav Republic of Croatia, had been detained.

Police have not yet identified them, but said that the group comprised two Germans, two Arabs and a Croat. They are now held in a pretrial confinement.

The statement also said that automatic rifles, about 1,000 submachine guns "Kalashnikov" and a large amount of ammunition have been seized.

The arms allegedly came from some African countries and should have been shipped to Croatia via Poland and Czechoslovakia.

SPAIN

Missile Missiles To Be Purchased From France

LD0412101991 Madrid TVR International Television
in Spanish 1430 GMT 13 Dec 91

[Excerpt] The Council of Ministers met today and approved several important legislative measures. [passage omitted] Among them was the decision to purchase 800 Mistral antiaircraft missiles from France for 15 billion pesetas. [passage omitted]

UNITED KINGDOM

King Cites New Dangers of Proliferation

470P0004 London THE DAILY TELEGRAPH
in English 21 Nov 91 p 31

[Article by William Wierke and Roger Highfield: "King Warns of Soviet Atom Weapon Mercenaries"]

[Text] Fears that the break-up of the Soviet Union could lead to some of her nuclear scientists being tempted by lucrative salaries to countries developing their own nuclear weapons were raised by Mr King, Defence Secretary in the Commons yesterday.

He expressed concern about the dangers of nuclear proliferation during a debate on nuclear defence. There was also anxiety about the control of nuclear armaments in former states of the Soviet Union.

His fears were echoed by an expert on the proliferation of nuclear weapons yesterday who said that former nuclear weapons personnel should be monitored to ensure they did not become nuclear mercenaries.

In the Commons, Mr King, drew attention to scientists working at "atomic cities" created under the old centralised structure of the Soviet Union.

"Now there are atomic cities and there are armaments cities as well," he said.

"These cities come under the responsibility of ministries of the Soviet Union which may themselves be abolished, or may be in the process of being abolished, and may soon lack the resources to maintain those cities," he said.

"There is a risk then as to where those personnel may actually be going, personnel who may have very particular skills and capabilities which could be very much in demand with certain other parts of the world."

He said 15 countries possessed the means to deliver a nuclear warhead by ballistic missile, and the number was soon expected to rise to 21, including Pakistan, India, Libya, Iraq and Iran.

Mr Paul Leventhal, distinguished visiting fellow at Cambridge University's Global Security Programme, an academic unit studying broad international security issues, said: "There are thousands of people who have classified knowledge about the design of nuclear weapons and how to produce the materials required for nuclear weapons, notably enrichment and reprocessing."

It was vital for U.S. and Soviet authorities to co-operate to police former nuclear personnel.

The crux of Mr King's statement yesterday is that Britain helped to train the most prominent scientists in Iraq's multi-billion pound nuclear weapons programme. Dr Jaafar Dhiah Jaafar, a former research associate of Imperial College, London.

Dr Jaafar, now the vice-president of the Iraqi Atomic Energy Commission, came to Imperial College in 1971 as a post-doctoral fellow after studying at Birmingham University.

The UN has taken a close interest in Iraq's personnel because it needs to ensure that, after all the equipment and paperwork for Iraq's weapons programme is destroyed, it cannot be restarted through the knowledge of thousands of skilled individuals.

Starting from scratch, they could in theory rebuild the programme within five years. Their names are now in the possession of the UN.

The Iraqis were almost exclusively reliant on foreign-trained specialists, said a spokesman from the International Atomic Energy Agency in Vienna. Britain, Germany, France, eastern Europe and the Soviet Union have trained Iraqi scientists at their universities.

Britain had been "quite prominent" in training personnel for Iraq's nuclear programme, said the agency.

The Universities Statistical Record shows that last year there were 290 Iraqi undergraduates and postgraduates. The figure in 1980 was 133.

British training has not only aided Iraq's nuclear weapons programme, any Iraqi who studied the fields of organic chemistry and biochemistry in the UK could have turned his hand to developing chemical weapons for Iraq.

EC Easy To Seek Ukraine Nuclear Resources

ALONG/101740 Paris AFP in English 1417 GMT
9 Dec 91

[Text] Maastricht, The Netherlands, Dec 9 (AFP)—The European Community (EC) is to send an envoy urgently to the breakaway Soviet republic of Ukraine to seek assurances about its nuclear weapons, a Dutch diplomat said here Monday (9 December).

Speaking on the sidelines of an EC summit on political and economic union, he said Dutch Ambassador Christian Korter would fly to the Ukraine on Thursday and report back to EC ministers in Brussels next Monday.

Finland's Nuclear Decision May Influence Germany's

ENR/ENR/6 Helsinki ENR/ENR/6 ADRIAN/ADRIAN
in Swedish 12 Nov 91 p 4

[Article by Hentik (last name missing): "Finnish Decision on Nuclear Power May Issue for German Industry"]

[Text] Erlangen—The decision on whether or not to build a fifth nuclear power plant in Finland—a decision due to be made next year—is by no means an internal Finnish affair.

Certainly it is the parliament which will finally decide the matter, but its decision will affect not only Finnish energy supplies but also the entire European nuclear power industry.

Since the accident at Chernobyl in 1986, it has not been politically opportune in Europe to order new nuclear power facilities. From that standpoint, a Finnish order for a new facility would have a far-reaching influence on areas of public opinion that are becoming more friendly to nuclear power again.

A visit to the head office of the new European nuclear giant NPI (Nuclear Power International) in the Russian city of Erlangen confirms the notion that the Finnish decision is being awaited with particularly great interest.

Nuclear Power International is a firm that came into existence in 1989 when Germany's Siemens and France's Framatome combined their resources. In all, the NPI has built about 110 nuclear power plants in various places around the world, chiefly in the home countries France and Germany. The nuclear power plants built by that market leader have a total output of no less than 100,000 megawatts.

The NPI is one of three corporations which submitted firm bids at the end of October to build the fifth nuclear power plant in Finland. The other two are Sweden's ABB-Atom and the Soviet Union's Atomenergoproekt.

"The real competition is between ABB-Atom and the NPI. If Finland chooses the Soviet alternative, it will be

for other reasons," said Adolf Hentik, a member of the Siemens board of directors and managing director of the nuclear power division.

Of the total of seven reactor types being offered, the NPI is offering four pressurized water reactors with either 1,100 or 1,400 megawatts for Lovina and boiling water reactors with the same output for Olkiluoto outside Rauma.

ABB-Atom is offering boiling water reactors of two types—1,170 or 1,350 megawatts—for Olkiluoto. The Russian alternative is a 1,040-megawatt pressurized water reactor to supplement the two smaller reactors on Hanhikivi Island in Lovina.

Strict German Standards

If Finland's Voima, Industrial Power, and Pöytäkirja choose the NPI, Siemens will have overall responsibility. The NPI's deputy managing director, Fritz Ruess, estimates that Finnish industry's share in the production of components would amount to about 50 percent.

"German safety regulations and the design of the reactor suit Finnish requirements better than the French ones would. That is why the Siemens design was offered to Finland," said Fritz Ruess.

He points out that safety regulations vary by country and are therefore difficult to compare. But German requirements, like the safety requirements in the Nordic countries, are unquestionably the strictest in the world.

"The safety requirements concerning the release of radiation and serious near-accidents at German power plants are even stricter than Finland's rules, which are internationally recognized as being strict," said Ruess.

As a matter of interest, it can be mentioned that the German facilities are designed to withstand both earthquakes and air crashes. The safety philosophy is based on the idea that the most serious and most improbable accidents could occur.

If a serious accident occurs, an computer-based safety system automatically takes over, giving the operating personnel 30 minutes in which to plan other measures.

"The 30-minute rule applies to German nuclear power plants. We are convinced that that well-tested computer system is more reliable in a sudden crisis situation than a human being, who may not know immediately what needs to be done," said Ruess.

The corresponding period in the United States is 20 minutes, while in France it is 10 minutes. The trend in all cases is to lengthen the time that the automatic safety systems are in control.

No One Willing To Invest in Old East German Power Plants

The strictness of German regulations is proven not only by closer acquaintance with German facilities but also by the fact that no new facilities have been built.

Without political consensus, the power plant giant Siemens is not venturing or is not willing to make any new investments in nuclear power plants.

For the same reasons, no one has lifted a finger to start up the facilities in the former GDR. Those plants have been shut down not because they are unable to operate but because they do not meet German safety standards.

"No one wants to invest money in those facilities as long as there is still no certainty that they can be made to satisfy all the standards," said Kuern.

Last week, however, Siemens management criticized the EC for wanting to do no more than investigate the shortcomings of EEC European nuclear power plants. Siemens feels that it is high time to pass from words to action and to enforce the safety of those facilities which, by Western standards, ought to be shut down.

There are also examples in the former FRG of facilities whose operating permits have been revoked. The reprocessing plant in Wackersdorf is an empty shell. The German nuclear power industry invested about 2.5 billion (currency not given) in that facility before it was stopped. The result is that all of Germany's high-level nuclear fuel waste is processed, very expensively, at French and British facilities.

But the Germans themselves have to handle the final storage of their nuclear waste.

Social Democrats in Key Role

There are currently 21 functioning nuclear power plants in Germany: 10 of them in the 1,400-megawatt class. Nuclear power accounts for one-third of the country's electricity production. Coal from German mines is the other important source of energy.

As a result of the Chernobyl accident, there was solid opposition to nuclear power in Germany during the final years of the 1980's. New projects for Siemens' nuclear

power reactors could only be found a long way off—in Argentina and Brazil, for example.

Now there are clear signs that public opinion in Germany is changing. The politicians have agreed that the greenhouse effect should be counteracted by reducing releases of CO₂ by 25 percent by the year 2005. People in the industry say that is not possible without more nuclear power.

The coalition parties—the CDU (Christian Democratic Union) and the FDP (Free Democratic Party)—have already come out in favor of more nuclear power. But for the nuclear power industry, that is not enough.

"Expansion requires political consensus," said Kuern of Siemens.

He does not expect support from the Greens, but that makes the attitude of the Social Democrats all the more important.

A nuclear power plant takes half a decade to build and costs about 10 billion Finnish markkaa. The nuclear power industry is not going to run the risk of building a plant which may not receive an operating license for political reasons if there is a change of government.

It can therefore be said that the SPD (Social Democratic Party of Germany) is in a key position on the issue of nuclear power in Germany. At a party convention following the Chernobyl accident, the SPD passed a resolution opposing nuclear power and calling for its eventual phasing out. The SPD has stuck to its policy, but there are those who think the Social Democratic Party would be forced to reconsider its energy policy if it became the government party again.

Not in energy policy itself a simple equation in Germany. The very fact that the coal industry employs 130,000 people whose average age is only 35 years means that no quick changes are to be expected.

Despite that, the Finnish decision on nuclear power will have wider consequences than perhaps our decision-makers would like. This is also shown by the international appeal not to build a fifth power plant which the Finnish parliament received a couple of days ago. The nuclear power industry and nuclear power's opponents both realize that the Finnish decision will mark a turning point.

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